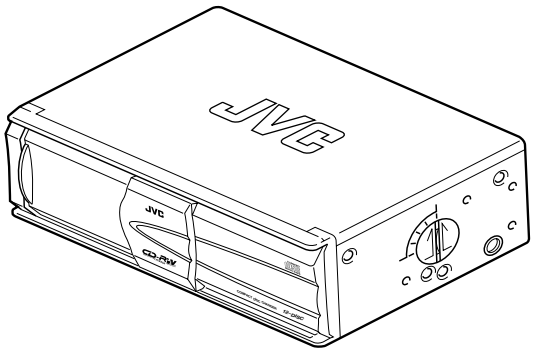
JVC

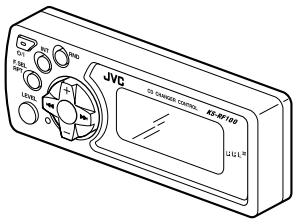
SERVICE MANUAL

CD CHANGER

CH-X1100/CH-X1100RF



CH-X1100



KS-RF100

COMPACT disc DIGITAL AUDIO

CD-RW PLAYBACK

Area Suffix
J ------ Northern America

- CH-X1100RF is a combination of CH-X1100 and KS-RF100
- KS-RF100 is a combination of Remote control and the RF unit.

This model CH-X1100 / CH-X1100RF is a model of the next term of CH-X470RF.
Therefore the service manual for this model is consisting of Parts list only.
For others, please refer to the service manual of CH-X470RF (issue No.49668).

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No.49672
Dec. 2001

■Parts list (General assembly)

P3-3 **Block No. M1MM**

⚠	Item	Parts name	Parts number		Q'ty
			CH-X470RF J	CH-X1100/CH-X1100RF J	
	6	TOP COVER	LV10407-006A-SL	LV10407-009A	1
	9	BOTTOM COVER	LV10408-006A-SL	LV10408-009A	1
	21	F.PANEL ASSY	LV20923-010B	LV20923-009B	1
	24	NAME PLATE	LV33324-001A	LV33323-001A	1
	28	LABEL	LV40528-005A	LV40528-007A	1

■Parts list (Packing)

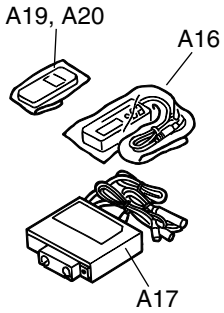
P3-11 **Block No. M3MM**

⚠	Item	Parts name	Parts number		Q'ty
			CH-X470RF J	CH-X1100RF J	
	P 1	CARTON	LV33326-001A	LV33325-001A	1

■Parts list (Accessories)

P3-11 **Block No. M5MM**

⚠	Item	Parts name	Parts number		Q'ty
			CH-X470RF J	CH-X1100RF J	
	A16	DISPLAY UNIT	LV42722-001A	LV42723-001A	1
	A17	RF UNIT	LV42720-001A	LV42721-001A	1
	A19	BATTERY	----------	QAB0014-001A	1
	A20	REMOCON	----------	RM-RK33	1



■Parts list (Packing)

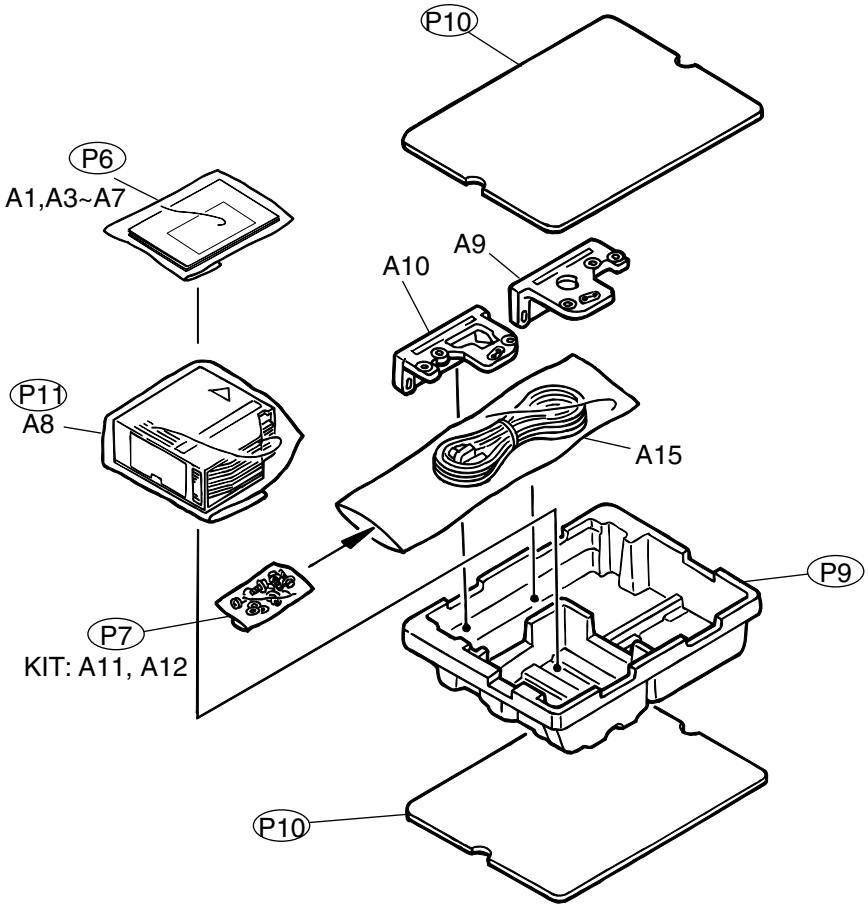
P3-11 **Block No. M3MM**

⚠	Item	Parts name	Parts number		Q'ty
			CH-X470RF J	CH-X1100 J	
	P 1	CARTON	LV33326-001A	LV33409-001A	1
	P 3	ACCESSARY BOX	LV30453-003A	----------	-
	P 4	SEPALATOR	LV30575-002A	----------	-
	P 5	SPACER	LV30576-002A	----------	-
	P 9	PAPER CUSHION	----------	LV10355-001A	1
	P10	CUSHION SHEET	----------	LV31895-001A	2
	P11	CUSHION SHEEVE	----------	LV31896-001A	1

■Parts list (Accessories)

P3-11 **Block No. M5MM**

⚠	Item	Parts name	Parts number		Q'ty
			CH-X470RF J	CH-X1100 J	
	A 2	INST BOOK(KS-RF50) (LANGUAGE)	LVT0844-001A (ENG,SPA,FRE)	----------	-
	A13	SHEET(B)	VYTT546-004	----------	-
	A14	SHEET(A)	VYTT547-004	----------	-
	A15	8P BUS-BUS CORD	QAM0149-001	QAM0080-001	1
	A16	DISPLAY UNIT	LV42722-001A	----------	-
	A17	RF UNIT	LV42720-001A	----------	-
	KIT	SCREW PARTS KIT	CHX99RF-SCREW 1	CHX99J-SCREW 1	1



JVC

VICTOR COMPANY OF JAPAN, LIMITED
MOBILE ELECTRONICS DIVISION
PERSONAL & MOBILE NETWORK BUSINESS UNIT. 10-1,1Chome,Ohwatari-machi,Maebashi-city,371-8543,Japan

200112

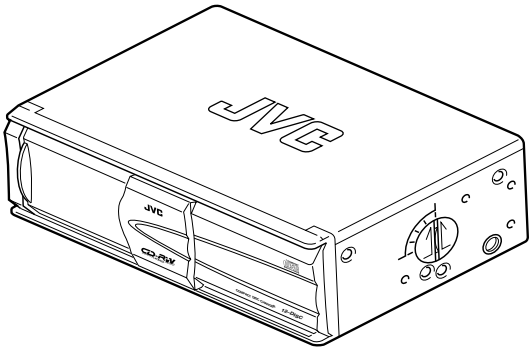
(No.49672)

JVC

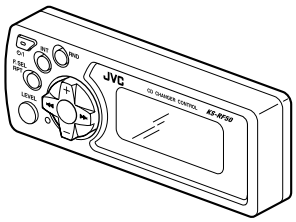
SERVICE MANUAL

CD CHANGER

CH-X470RF



CH-X470



KS-RF50

COMPACT disc DIGITAL AUDIO

CD-RW PLAYBACK

Area Suffix
J ------ Northern America

- CH-X470RF is a combination of CH-X470 and KS-RF50.
- KS-RF50 is a combination of Remote control and the RF unit.

Contents

Safety precaution ---------- 1-2
Preventing static electricity ---------- 1-3
Disassembly method ---------- 1-4
Forced eject procedures ---------- 1-20
Trouble shooting ---------- 1-21
Flow of functional operation until TOC read ---------- 1-23
Description of major ICs ---------- 1-27

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No.49668
Dec. 2001

Safety precaution

⚠ ***CAUTION*** **Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

⚠ ***CAUTION*** **Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.**

Preventing static electricity

1.Grounding to prevent damage by static electricity

Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

2.About the earth processing for the destruction prevention by static electricity

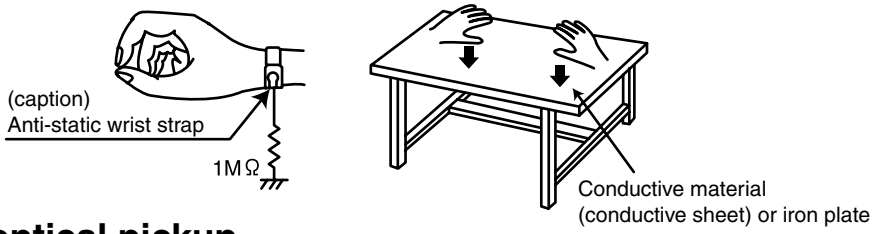
Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as CD players. Be careful to use proper grounding in the area where repairs are being performed.

2-1 Ground the workbench

Ground the workbench by laying conductive material (such as a conductive sheet) or an iron plate over it before placing the traverse unit (optical pickup) on it.

2-2 Ground yourself

Use an anti-static wrist strap to release any static electricity built up in your body.



3. Handling the optical pickup

1. In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)

2. Do not use a tester to check the condition of the laser diode in the optical pickup. The tester's internal power source can easily destroy the laser diode.

4.Handling the traverse unit (optical pickup)

1. Do not subject the traverse unit (optical pickup) to strong shocks, as it is a sensitive, complex unit.

2. Cut off the shorted part of the flexible cable using nippers, etc. after replacing the optical pickup. For specific details, refer to the replacement procedure in the text. Remove the anti-static pin when replacing the traverse unit. Be careful not to take too long a time when attaching it to the connector.

3. Handle the flexible cable carefully as it may break when subjected to strong force.

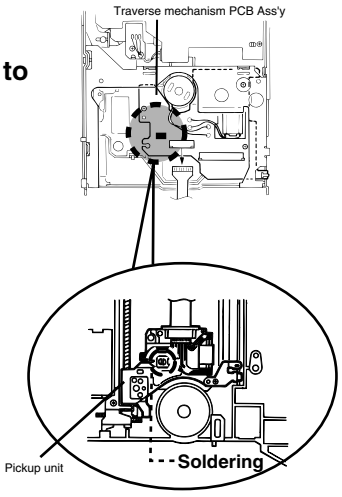
4. It is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it

Attention when traverse unit is decomposed

***Please refer to "Disassembly method" in the text for pick-up and how to detach the substrate.**

1.Solder is put up before the card wire is removed from connector on the CD substrate as shown in Figure.
(When the wire is removed without putting up solder, the CD pick-up assembly might destroy.)

2.Please remove solder after connecting the card wire with when you install picking up in the substrate.



Disassembly method

・ Perform operations according to the items to be disassembled.

<Replacement of the pickup>

1. After removing the exterior (top and bottom).
2. Proceed to the pickup replacement section.
3. When applying grease, refer to the exploded view. Use new grease.

<Mechanism section>

1. Remove the exterior (required section only).
2. The mechanism section is designed so that each unit can be removed separately.
3. When reassembling, refer to the assembling precautions. (Use new grease when applying grease.)

<Exterior section>

■ Removing the bottom cover and front panel assembly

(See Fig.1 to 4)

1. Remove the two screw **A** to unlock the mounting direction knob located on the side of the main unit.
2. Turn the mounting direction knob in the direction of the arrow using a coin, etc. to remove it. (The knob can be removed only when it is set to this position.)
3. Remove the four top cover fixing screws **B** at the triangle △ marks on the side of the main unit. (Perform the same operation on both sides.)
4. Turn the unit upside down so the bottom surface is facing upward.
5. Lift the rear edge of the bottom cover slightly and lift the side by grasping the DIN jack section on the side panel, then turn it toward the front (raise upward) to remove the bottom cover.
6. Unhook the four catches located on both sides of the front panel, and turn the front panel toward the top cover (lower down) to remove the front panel.

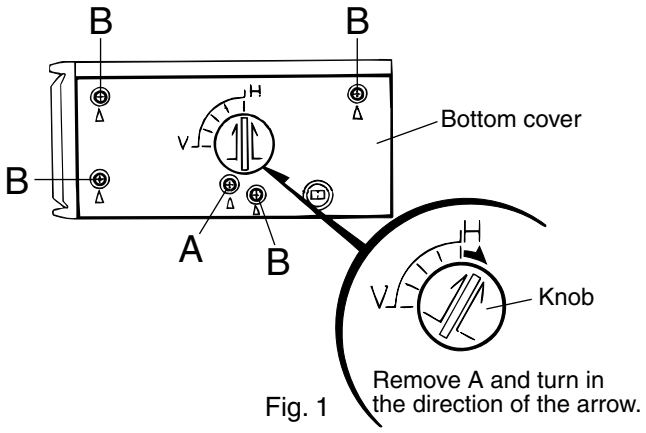


Fig. 1

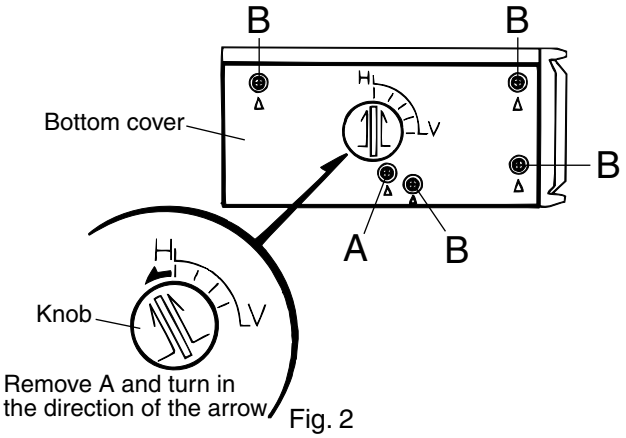


Fig. 2

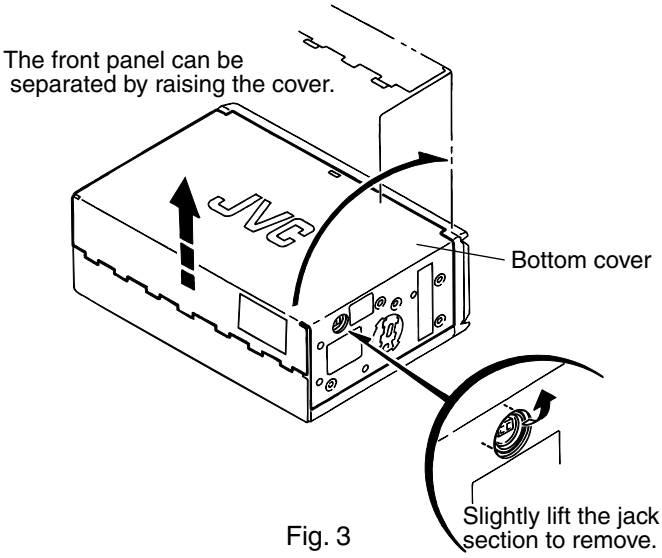


Fig. 3

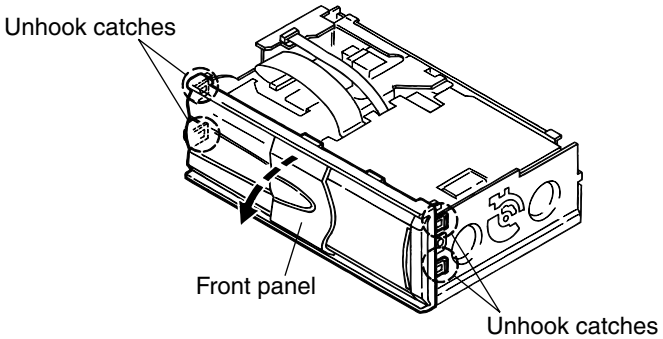


Fig. 4

■ Removing the top cover

(See Fig.5 to 9)

1. Remove the four damper bracket fixing screws **C** to remove the damper brackets.

2. Pull out the dampers, being careful not to damage them.
   When reattaching a damper, insert your finger to push out the center of the damper to mount it on the damper shaft, as shown in Fig. 6-1.

3. Turn the damper spring bracket toward the top at a right angle as shown in Fig. 7, then push down the lower side of the damper spring bracket to lift it off.

4. Remove the three fixing screws **D** and **E** on the DIN jack board assembly.

5. Lift the changer unit upward.

6. Remove the damper springs from the mechanism chassis if required. To reassemble, refer to the diagram below.

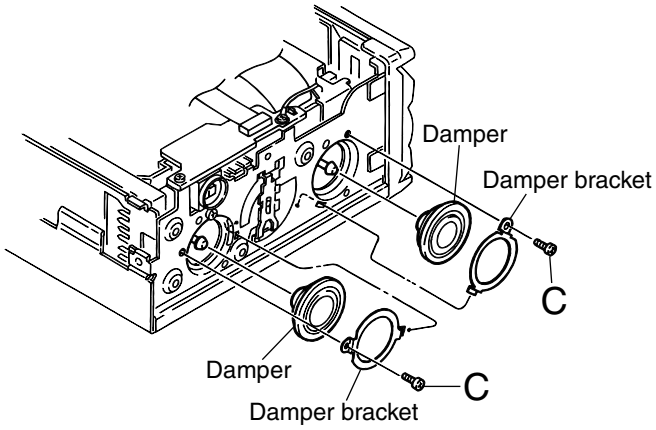


Fig. 5

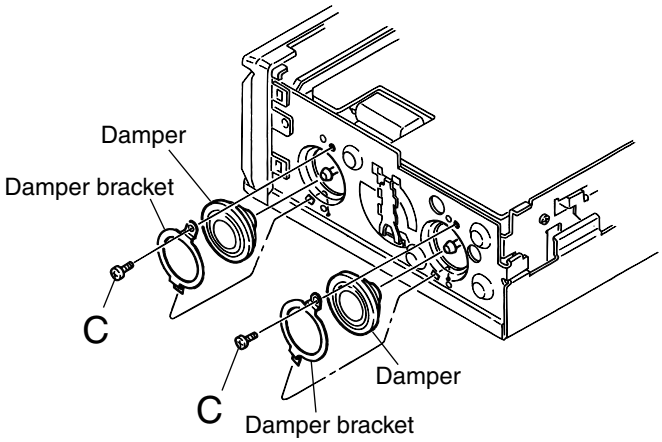


Fig. 6

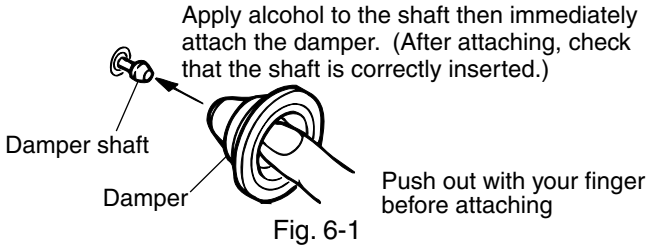

Apply alcohol to the shaft then immediately attach the damper. (After attaching, check that the shaft is correctly inserted.)
Damper shaft
Damper
Push out with your finger before attaching

Fig. 6-1

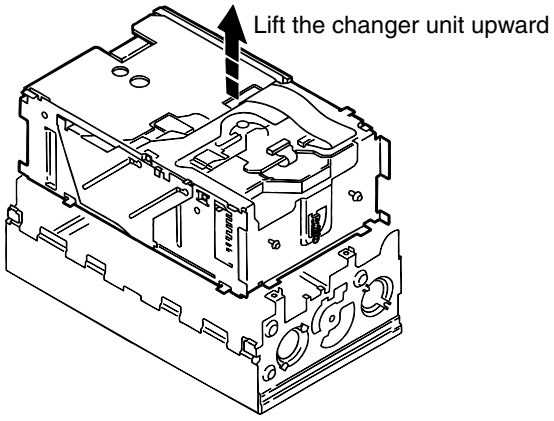
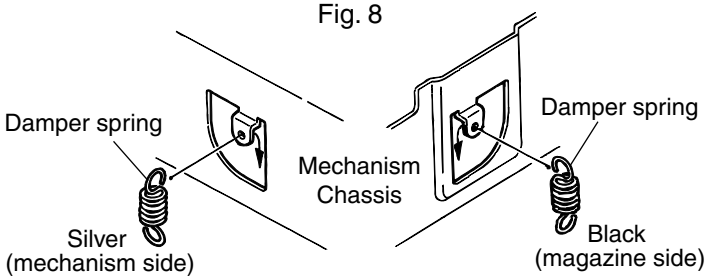


Fig. 8



How to attach the damper springs

Fig. 8-1

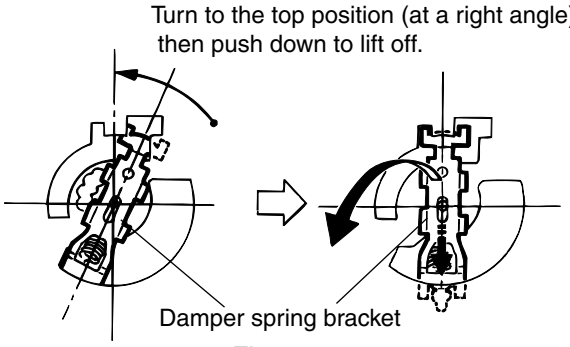


Fig. 7

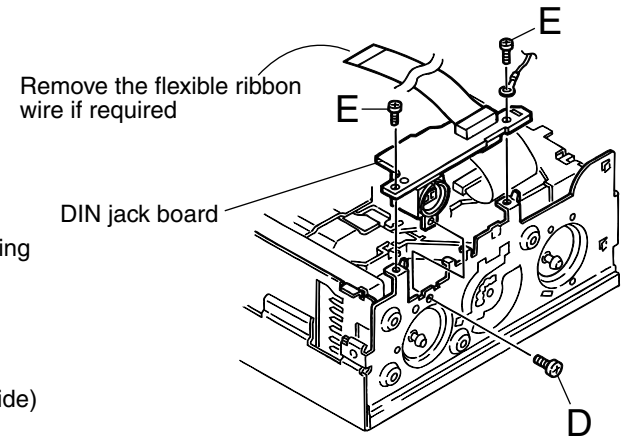


Fig. 9

■ Removing the fittings (See Fig.10)

1. Remove the fixing screw **F**.

2. Unhook the two catches **a** on the top edge of the fitting, then unhook the two catches **b** at the left / right bottom edges.

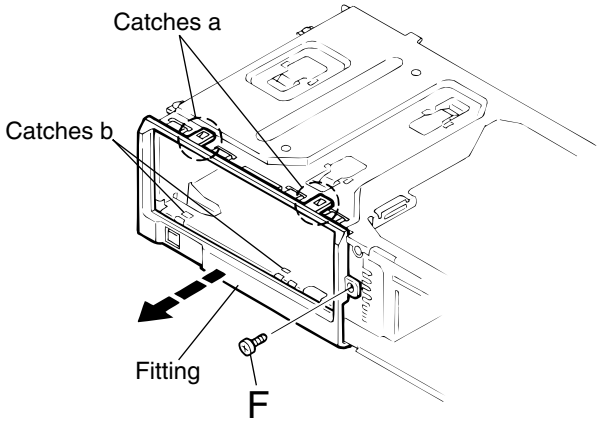


Fig. 10

■ Removing the main PCB assembly (See Fig.11)

1. Remove the power IC fixing screw **G**.

2. Remove the four screws **H** securing the main board assembly.

3. Disconnect position motor wire connector CN504 from the main board assembly.

4. Disconnect sensor board assembly wire connector CN601 from the main board assembly.

5. Remove the flexible ribbon wire from CN502 on the traverse mechanism board assembly.
   When reinstalling the board boards, refer to the reassembling procedures for protecting switches, etc.

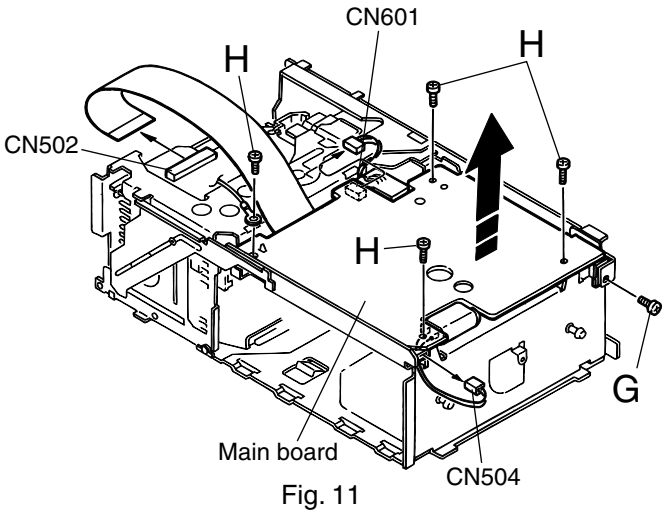


Fig. 11

<Changer mechanism section>

■ Sensor assembly unit (See Fig.12)

1. Remove the two screws **I** securing the sensor assembly unit.

2. Unhook the spring on the back of the sensor assembly unit from the holes on the chassis.

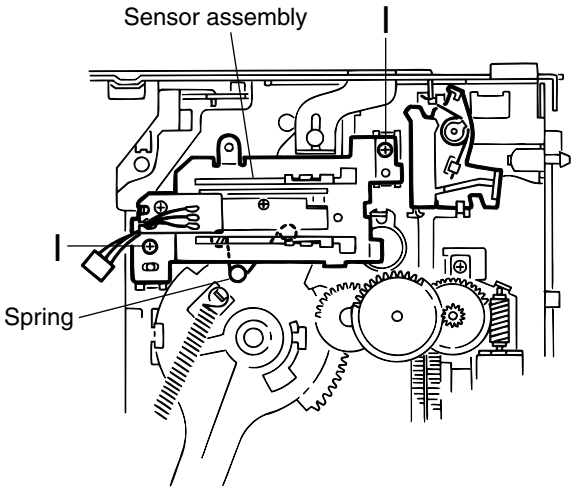


Fig. 12

■ Magazine lock arm (See Fig.12 and 13)

1. Remove the magazine lock spring from the front side of the chassis.

2. Remove the poly-washer **c** securing the magazine lock arm.

3. Turn the magazine lock arm in the direction of the arrow until the notch is at the **d** position to remove it from the chassis.

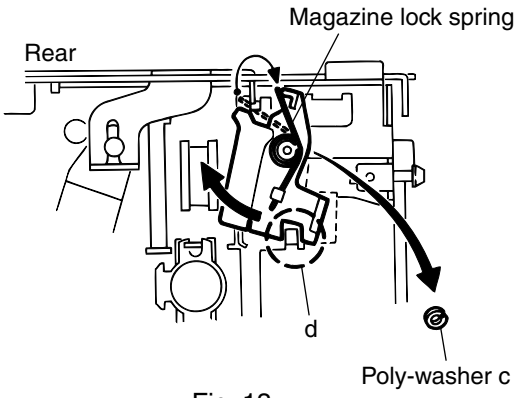


Fig. 13

■ Positioning motor assembly (See Fig.14)

1. Remove the two screws **J** securing the positioning motor.

2. Slightly lift the positioning motor assembly to remove it from the two burrs on the chassis.

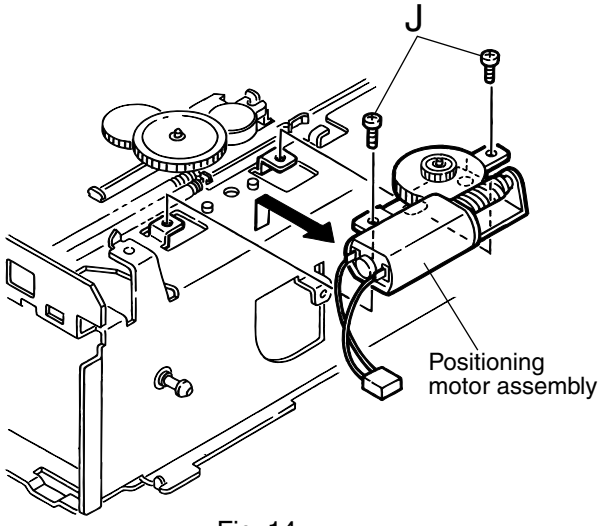


Fig. 14

■ Rear slider (See Fig.15)

1. Position the unit with the front section facing down. Rotate the third gear located on the back of the main unit in the direction of the arrow (clockwise).

2. Shift the rear slider in the direction of the arrow and remove it at the rear slider mounting position (at the widest hole).

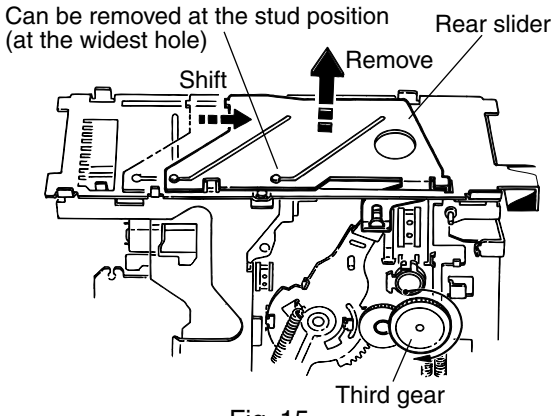


Fig. 15

■ Front slider (See Fig.16)

1. Position the unit with the rear section facing down. Rotate the third gear located on the bottom of the unit in the direction of the arrow (clockwise) until the front slider is shifted to the outermost position.

2. Remove the E-washer securing the front slider to remove the front slider from the chassis

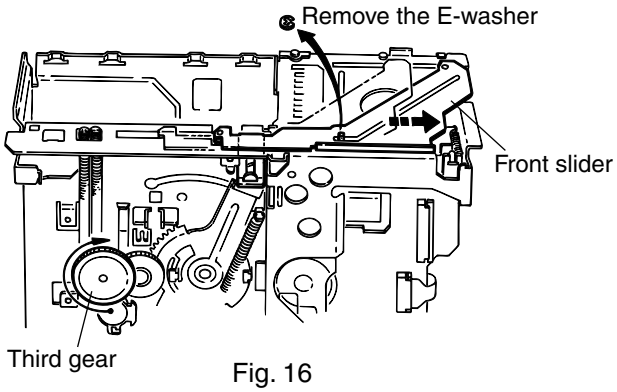


Fig. 16

■ Top plate (See Fig.17 and 18)

1. Remove the nine screws **K** securing the top plate.

2. Disconnect the section **e** attached to the rear of the unit, then lift the top plate slightly.

3. Slide the top plate toward the rear of the unit to remove the upper rod from the top plate.

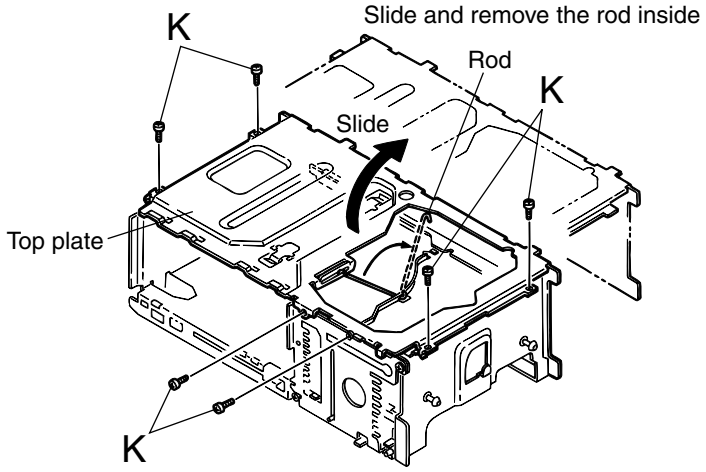


Fig. 17

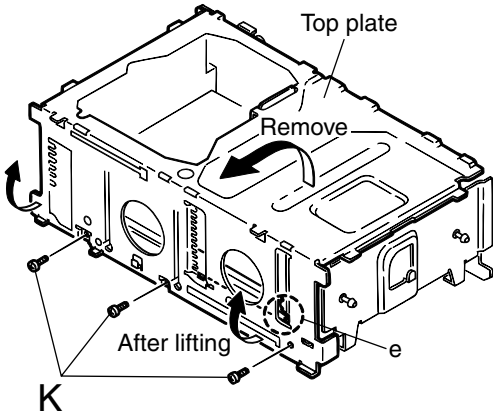


Fig. 18

■ Lifter unit (See Fig.19 and 20)

1. Unhook the elevator spring located on the front side of the unit. (Be sure to first unhook the spring from the lifter side as shown in the upper part of the diagram.)

2. Lift the lifter unit upward, then remove the lower rod to remove the lifter unit from the chassis.

■ Lifter bracket (See Fig.21)

1. Remove the two lifter bracket fixing screws **L** located on the back of the lifter unit.

2. Remove the lower rod.

■ Side bracket and traverse mechanism assembly (See Fig.22)

1. Remove the two side bracket unit fixing screws **M** to disconnect the side bracket unit from the lifter unit.

2. Remove the three shafts on the traverse mechanism assembly from the lifter unit.

CAUTION: For reassembling, refer to the reassembling procedures.

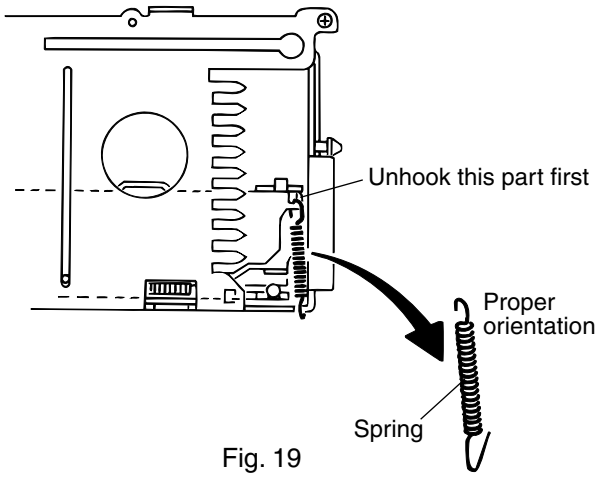


Fig. 19

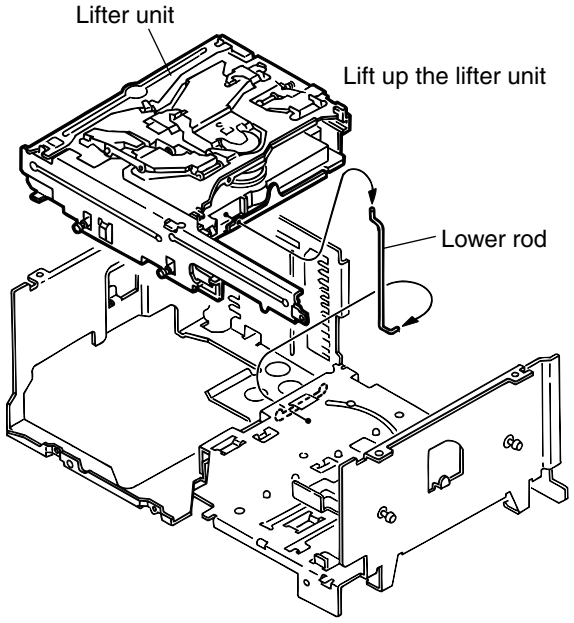


Fig. 20

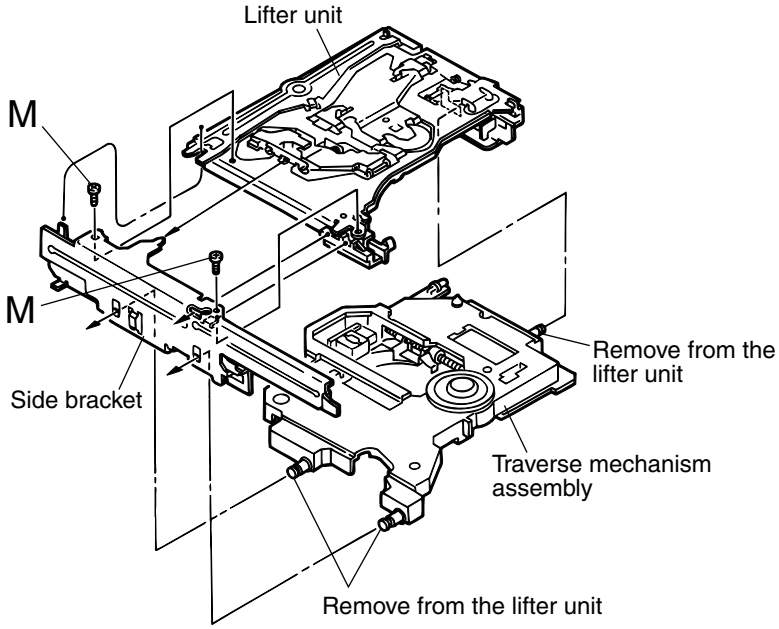


Fig. 22

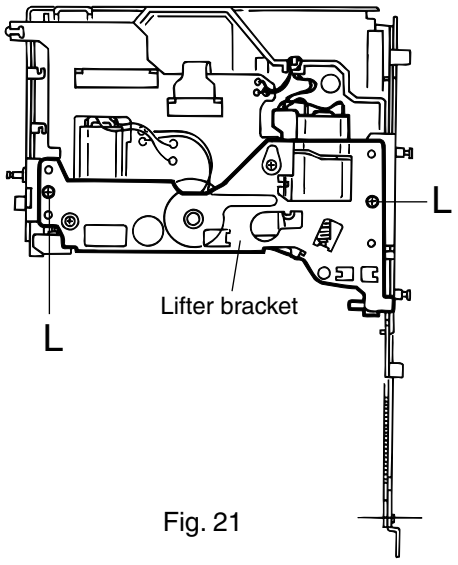


Fig. 21

■ Removing the mechanism board / pickup assembly (See Fig.23 to 26)

1. Remove the three screws **N** fixing the mechanism board on the back of the traverse mechanism.

2. Disconnect the two feed motor wires (blue and white), two spindle motor wires (red and black) and two tray motor wires (brown and black) that are soldered to the mechanism board.

3. Short-circuit the grounding point on the mechanism board. Move the mechanism board without disconnecting the wire from connector CN501. Solder the short circuit round on the pickup assembly.

4. Disconnect the wire from connector CN501 on the mechanism board.

5. Remove the screw **O** to remove the feed motor assembly.

6. Remove the screw **P** to remove the shaft holder retaining the feed slide shaft assembly and the middle gear.

7. Move the middle gear.

8. Move the pickup assembly upward from the gear section and remove it from the traverse chassis assembly.

9. Remove the two screws **Q** to remove the rack arm.

10. Pull out the feed slide shaft assembly.

11. Remove the screw **R** to remove the spring.

CAUTION: To reattach the mechanism board, connect the pickup flexible wire to connector CN501 on the mechanism board before unsoldering the short circuit round. Subsequently, fix the mechanism board using screws.

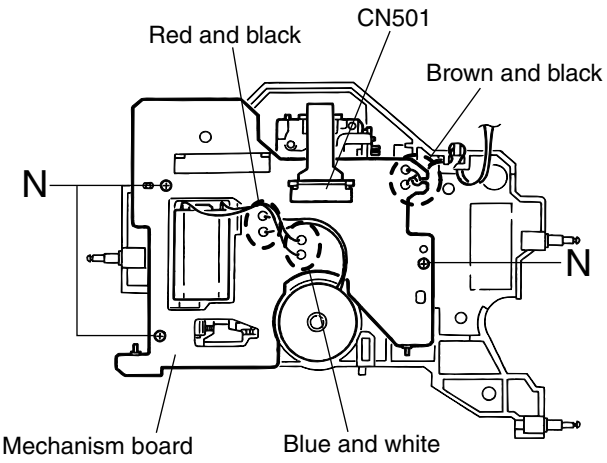


Fig. 23

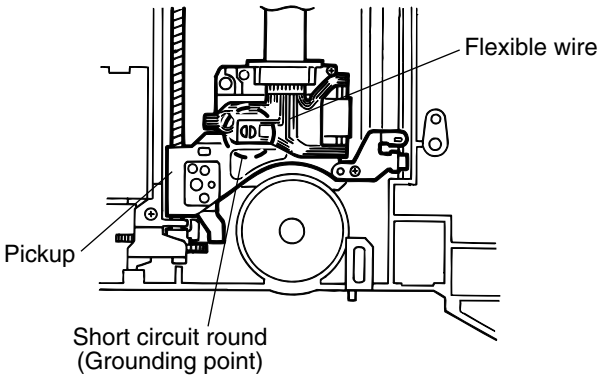


Fig. 24

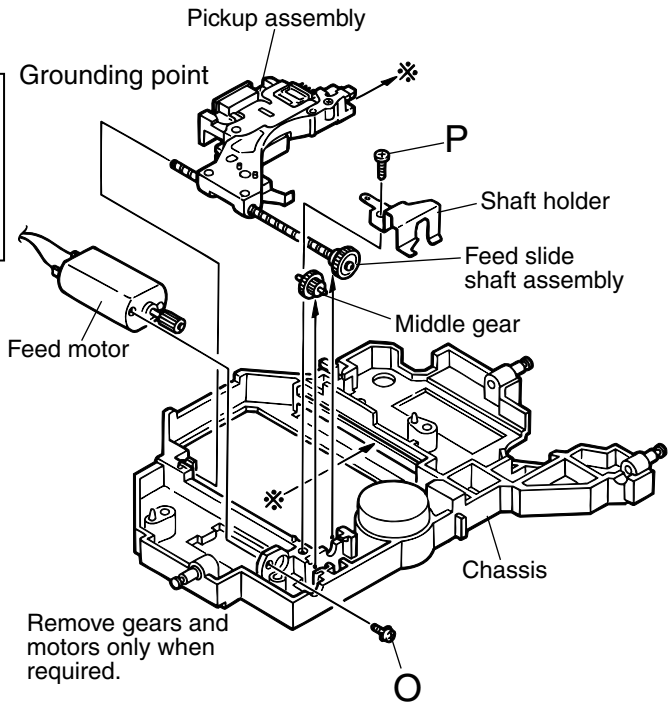


Fig. 25

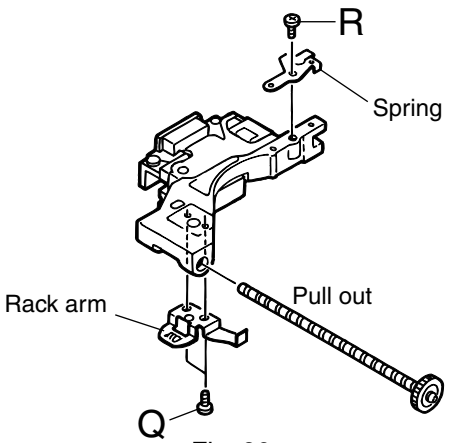


Fig. 26

■Tray motor (See Fig.27 and 28)

1. Remove the two screws **S** securing the tray motor.
2. Remove the two screws **T** to remove the tray motor assembly from the tray motor holder.

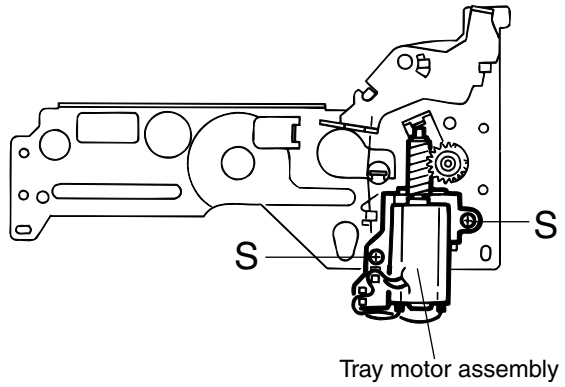


Fig. 27

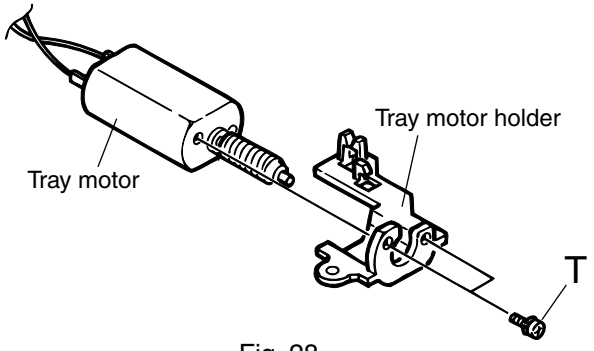


Fig. 28

■Separation of the chassis (L) assembly and chassis (R) assembly (See Fig.29)

1. Remove the two screws **U** retaining the chassis (L) and (R) assemblies.
2. Slide the chassis (L) assembly toward the front and detach it, then remove the chassis (L) upward.

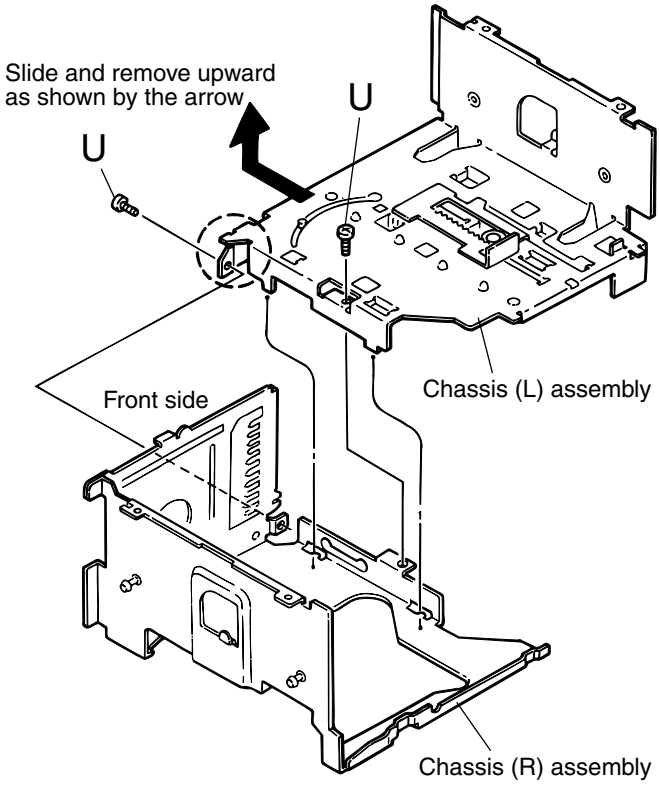


Fig. 29

<Precautions on reassembling>

CAUTION: When reassembling, also refer to the disassembling procedures.

■ Mounting the traverse mechanism (See Fig.30 to 34)

1. When mounting the pickup assembly, attach the feed slide shaft assembly to the traverse chassis.
   Apply E-JC-525 grease to the shaft.

2. Mount the middle gear and the feed slide shaft to the traverse chassis and secure them with the screw **P** through the shaft holder.

3. Before mounting the mechanism board, move the pickup to the outer edge position, then secure the board assembly using the screw **N**.
   At this time, check that the rest switch is correctly placed.

4. To mount the rack arm, first move the pickup to the middle position and secure it with the screws **Q**.

CAUTION: To reattach the mechanism board, connect the pickup flexible wire to connector CN501 on the mechanism board before unsoldering the short circuit round. Subsequently, fix the mechanism board using screws.

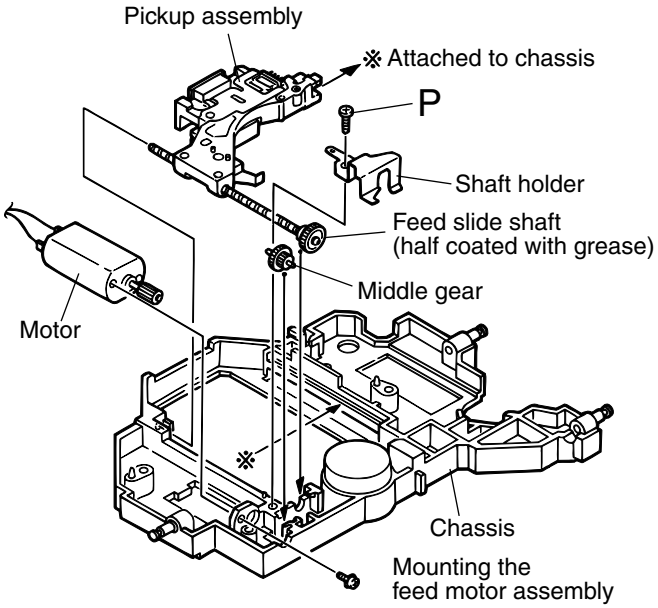


Fig. 30

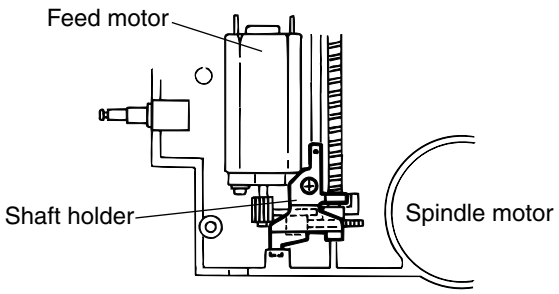


Fig. 31

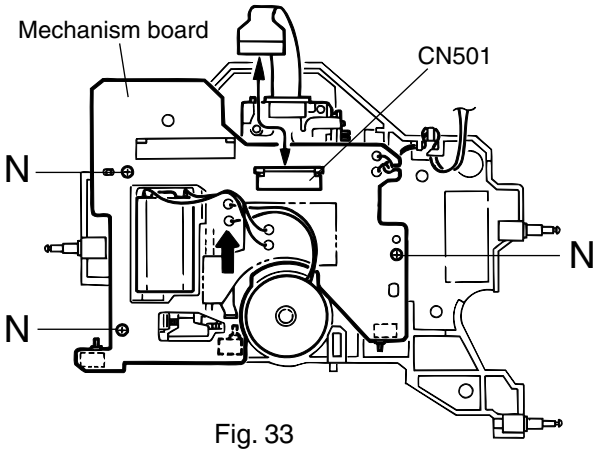


Fig. 33

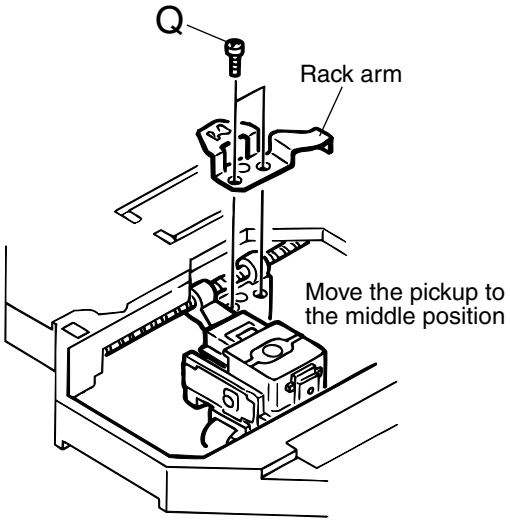


Fig. 32

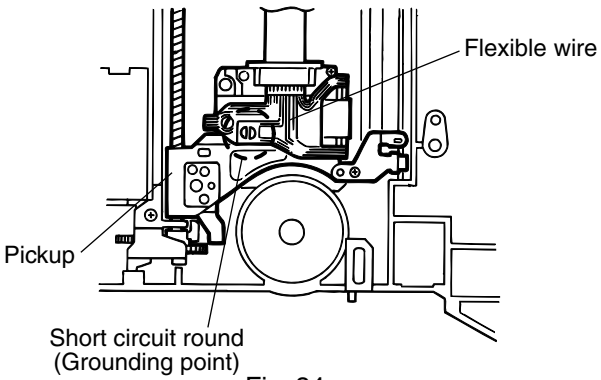


Fig. 34

■ Mounting the lifter unit

(See Fig.35 to 37)

1. Insert the shafts **f** of the traverse mechanism assembly into the slide grooves **g** on the lifter unit.

2. Shift the hook of the lifter unit to the edge, and shift the sliding lever inside the side bracket unit to the edge as well.

3. With each hole and lever shifted to the edge, mount the lifter unit and side bracket unit from the side.
   (Check each attached section, and check that the two shafts **h** of the lifter unit are correctly inserted into the holes **i** of the side bracket unit. After mounting, check that the levers move together.)

4. Turn the lifter unit upside down.
   As shown in Fig. 35, slide the lever 30 mm away from the edge, then mount the lifter bracket assembly.

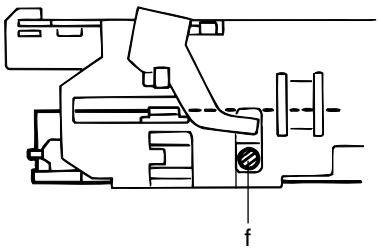


Fig. 35

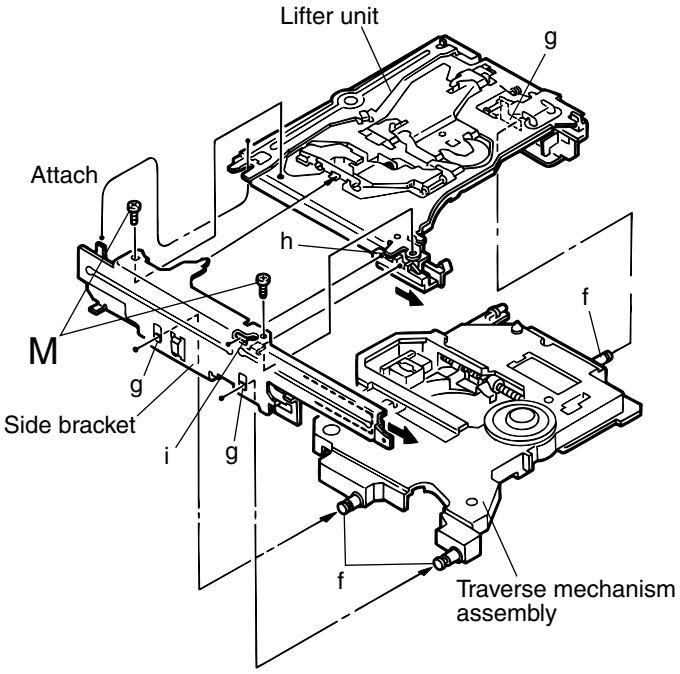


Fig. 36

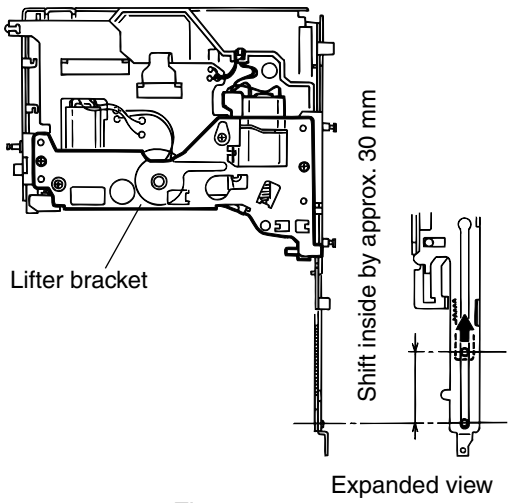


Fig. 37

■ Connection of the chassis (L) assembly and chassis (R) assembly (See Fig.38 to 40)

1. Attach the lower rod to the chassis (R) assembly. While shifting the rod toward the front side, mount the rod on the lifter unit.
   With the rod mounted, place the lifter unit on the chassis (R) assembly.

2. Combine the chassis (L) and (R) assemblies so that the hook section **j** of the chassis (L) assembly is inserted into the notch of the chassis (R) assembly by sliding it from the front side.

3. After engaging, secure with the two screws **U**.

4. Attach the tension spring between the lifter unit and the chassis.

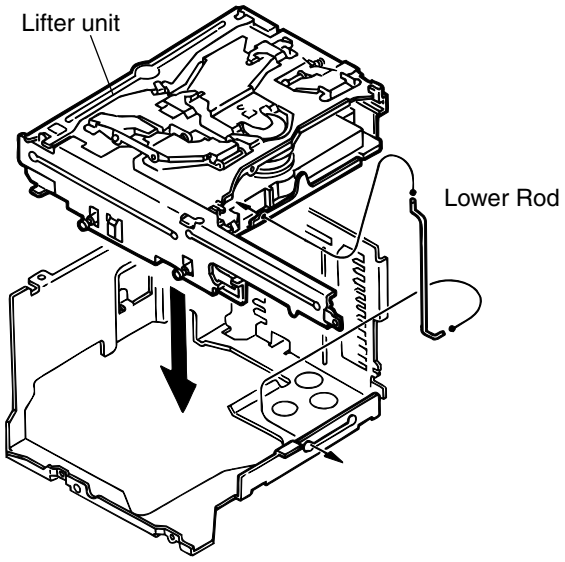


Fig. 38

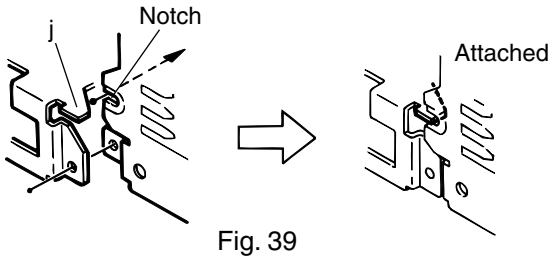


Fig. 39

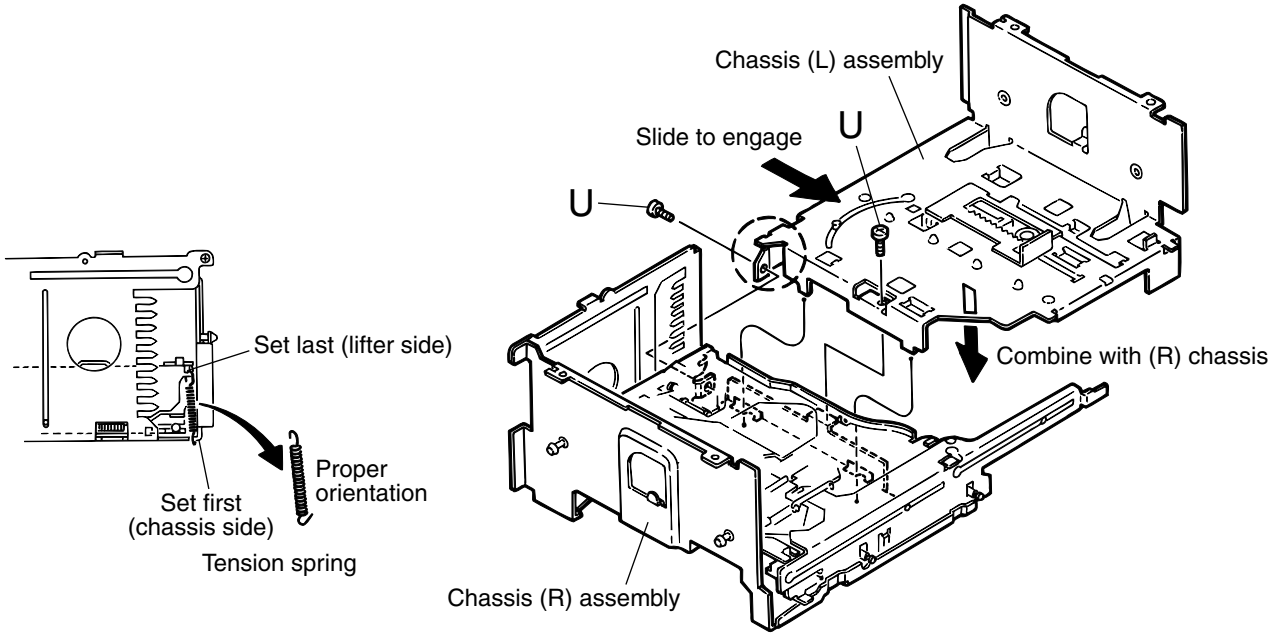


Fig. 40

■ Mounting the top plate

(See Fig.41 to 44)

1. Mount the upper rod on the lifter side **l** and set it on the rear of the top plate, then mount the other end of the upper rod to **m**.

2. Check that the five points (**n**, **o**, **p**, **s** and **r**) are correctly positioned.
   When mounting section **s**, set it so that section **t** of the lifter unit is pinched by the bending section of the top plate.

3. Secure the top plate with six fixing screws **K**.

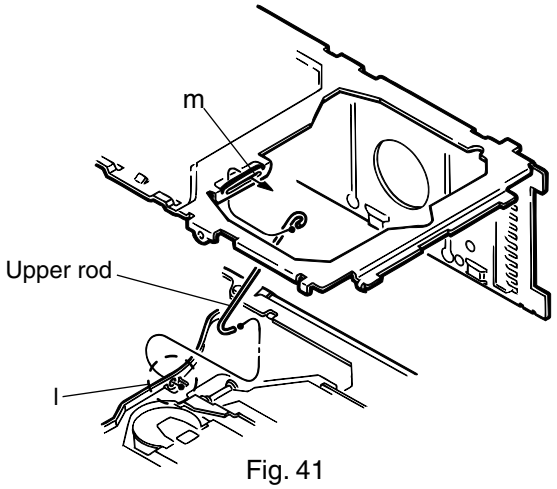


Fig. 41

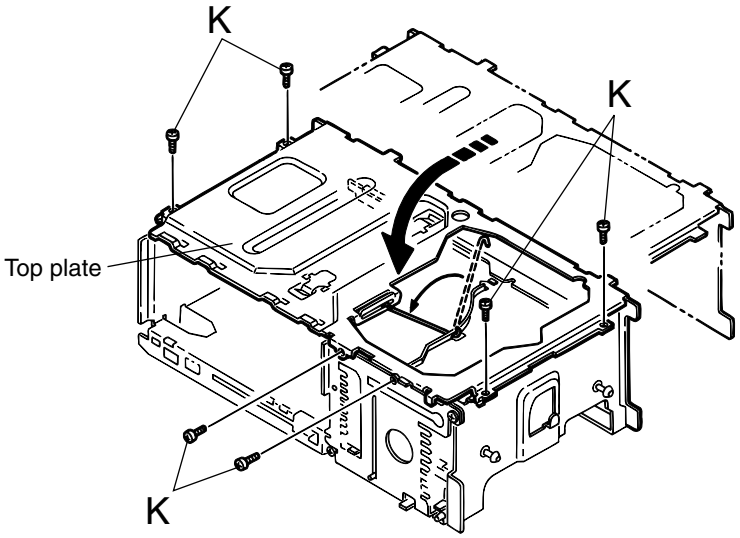


Fig. 42

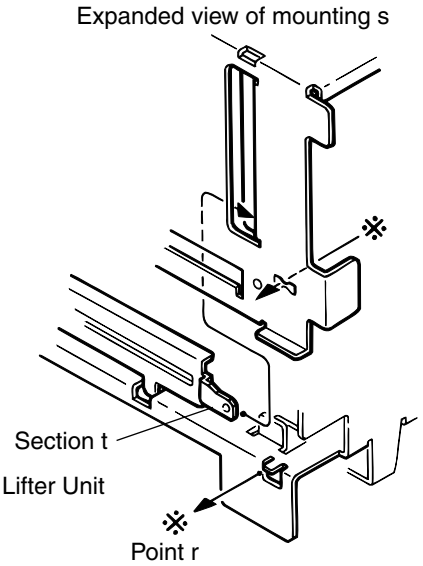


Fig. 43

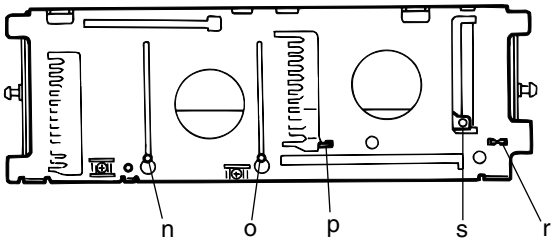


Fig. 44

■ Mounting the front slider and rear slider (See Fig.45 and 46)

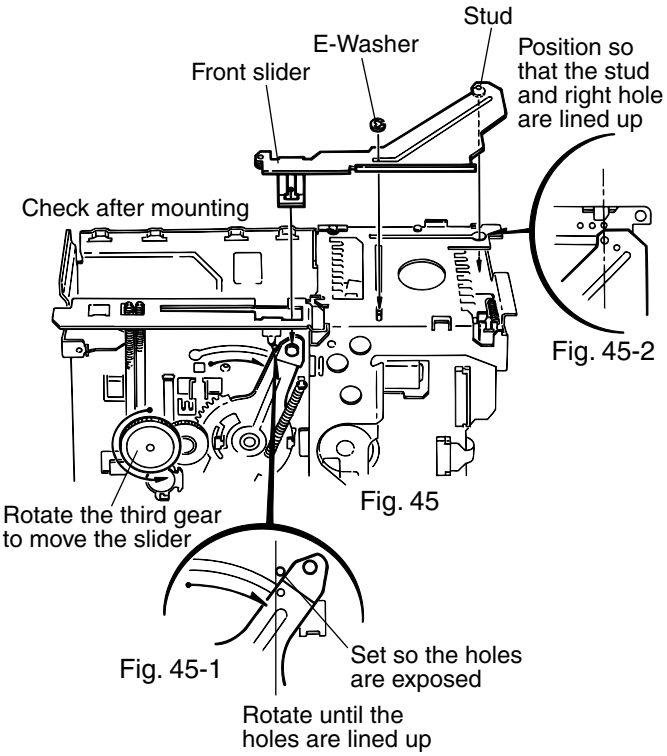
1. Position the unit with the rear side facing down, then rotate the third gear in the direction of the arrow (clockwise) until the lift arm comes to the position at which the holes are exposed, as shown in Fig. 45-1.

2. Mount the front slider from the top.
   Rotate the third gear counterclockwise until the hole of the slider is lined up with the right hole of the stud, as shown in Fig. 45-2.

3. Mount the E-washer on the shaft.

4. Position the unit with the front side facing down, then mount the rear slider. Check that the **u**, **v** and **w** positions are correctly mounted as shown in Fig. 46.

5. Rotate the third gear in the direction of the arrow (counterclockwise) until the lifter unit is at the top position.


Stud
E-Washer
Front slider
Position so that the stud and right hole are lined up
Check after mounting
Fig. 45-2
Fig. 45
Rotate the third gear to move the slider
Fig. 45-1
Set so the holes are exposed
Rotate until the holes are lined up

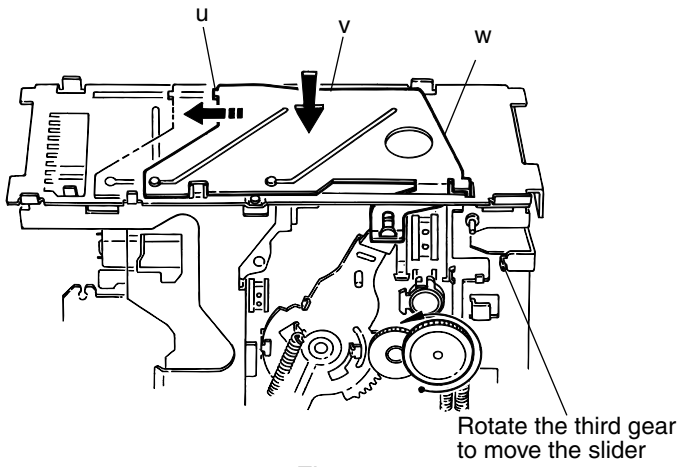


Fig. 46

■ Mounting the sensor board assembly (See Fig.47)

1. Attach the longer spring to the white resin, and attach the shorter spring temporarily to the sensor assembly bracket.

2. Mount the sensor assembly so that the shaft of the lift arm is inserted into the longer hole on the white resin located on the back of the sensor board assembly.

3. Attach the shorter spring to the hook of the lift arm.

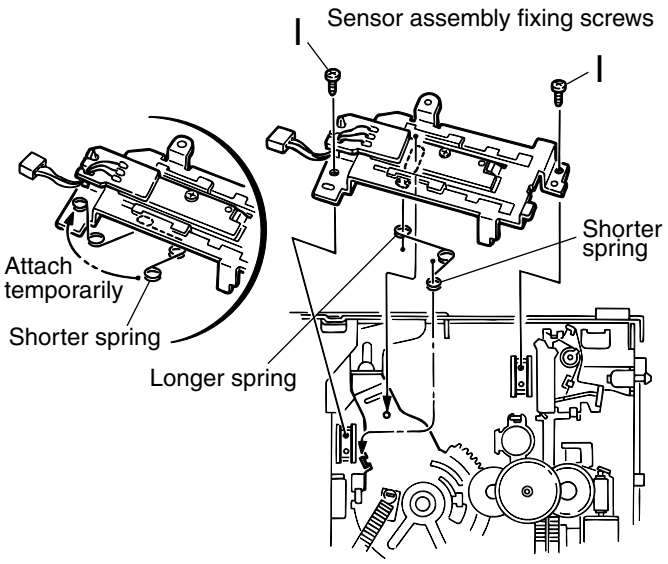


Fig. 47

■ Mounting the main PC board assembly (See Fig.48)

1. Rotate the third gear clockwise until section **x** of the front slider and the third hole from the right are lined up.
   (Be sure to set properly. If incorrectly set, the switches on the board assembly may be damaged.)

2. After they are correctly positioned, mount the main board assembly.

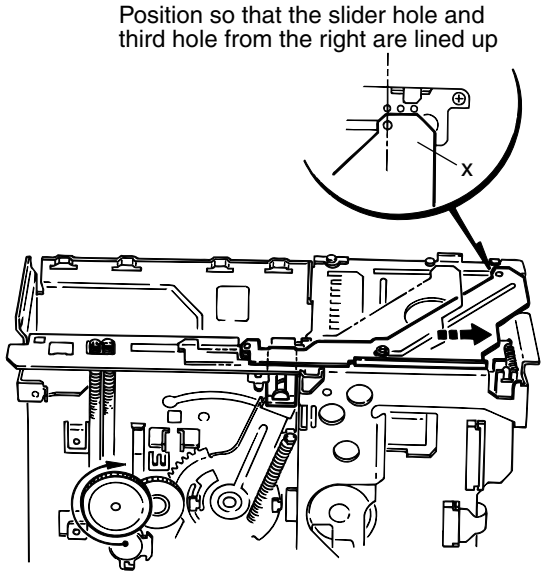


Fig. 48

■ Pickup replacement procedure (See Fig.49 to 55)

1. Remove the bottom cover, front panel and top cover from the exterior section.

2. Unplug the flexible ribbon wire from connector CN502 on the traverse mechanism PC board assembly.

3. Turn the rear slider and third gear in the lifter section counterclockwise until the traverse mechanism assembly is in the lowermost (bottom) position.

4. Unsolder the two wires (black and brown) connected to the tray motor.

5. Remove the two screws **M** from the round holes on the chassis (R) assembly to remove the lifter bracket (L).

6. Remove the lower rod.

7. Disconnect the two feed motor wires (blue and white), two spindle motor wires (red and black) and two tray motor wires (brown and black) that are soldered to the mechanism board.

8. Short-circuit the grounding point on the mechanism board. Move the mechanism board without disconnecting the wire from connector CN501. Solder the short circuit round on the pickup assembly.

9. Disconnect the wire from connector CN501 on the mechanism board.

10. Remove the three fixing screws **N** from the round holes on the chassis (R) assembly to remove the traverse mechanism board assembly.

11. Remove the pickup shaft holder fixing screw **P** to remove the pickup assembly.

CAUTION: When replacing the pickup, be sure to apply countermeasures against static electricity (grounding the operation table, wrist band and soldering iron). To remove it, first short-circuit the grounding point on the mechanism board, then lift the mechanism board assembly with CN501 connected. Next, short-circuit the grounding point on the pickup main unit, then unplug the pickup flexible board from connector CN501.

CAUTION: When reassembling, perform in the reverse order.

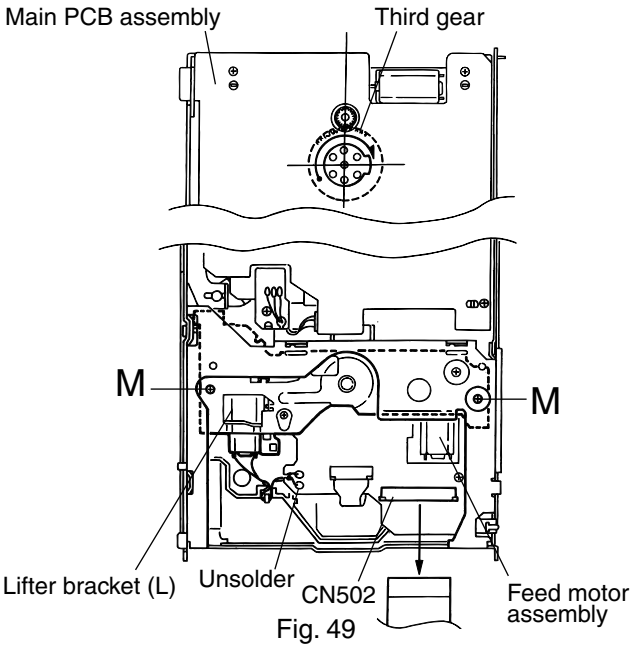


Fig. 49

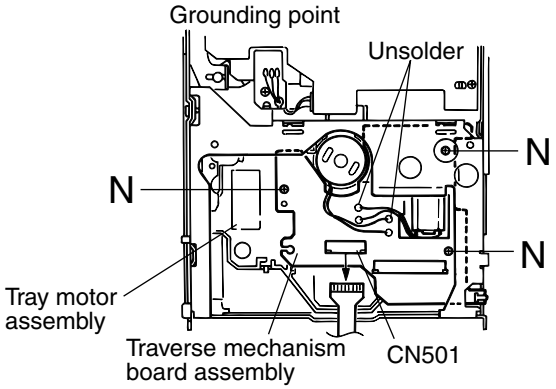


Fig. 50

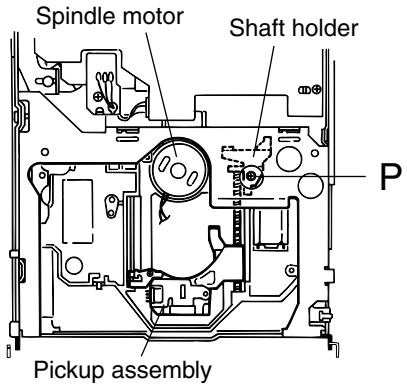


Fig. 51

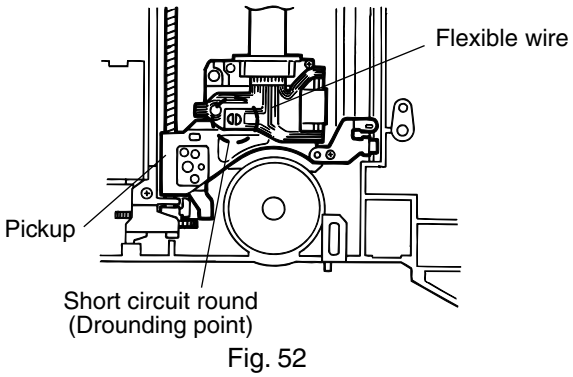


Fig. 52

12. Remove the two rack arm fixing screws **Q**.
    Pull out the feed slide shaft.
    Remove the shaft holder fixing screw **R**.

13. When mounting the lifter bracket after replacing the pickup, shift the lifter unit lever approx. 30 mm towards the inside, then mount the lifter bracket.

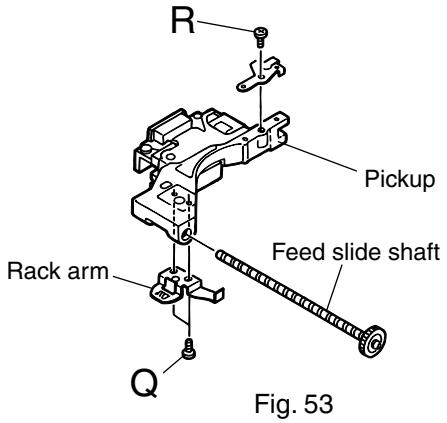


Fig. 53

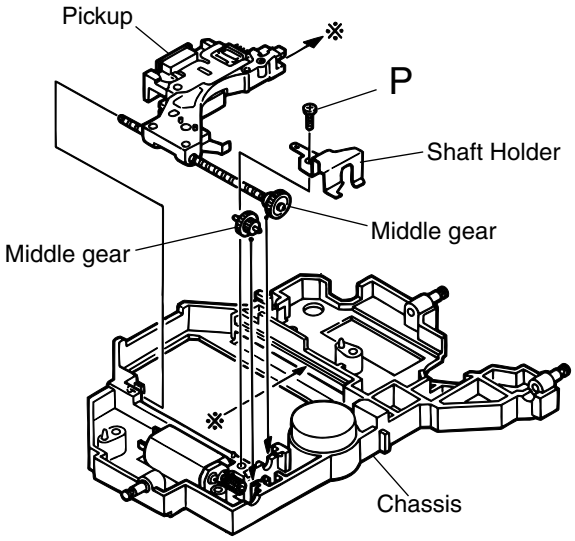


Fig. 54

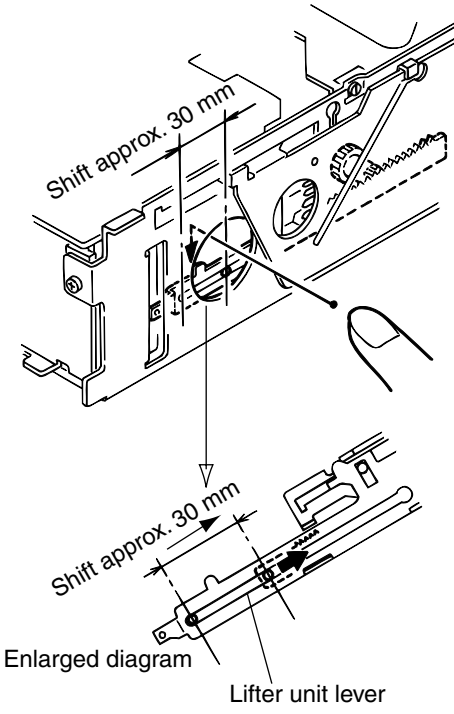
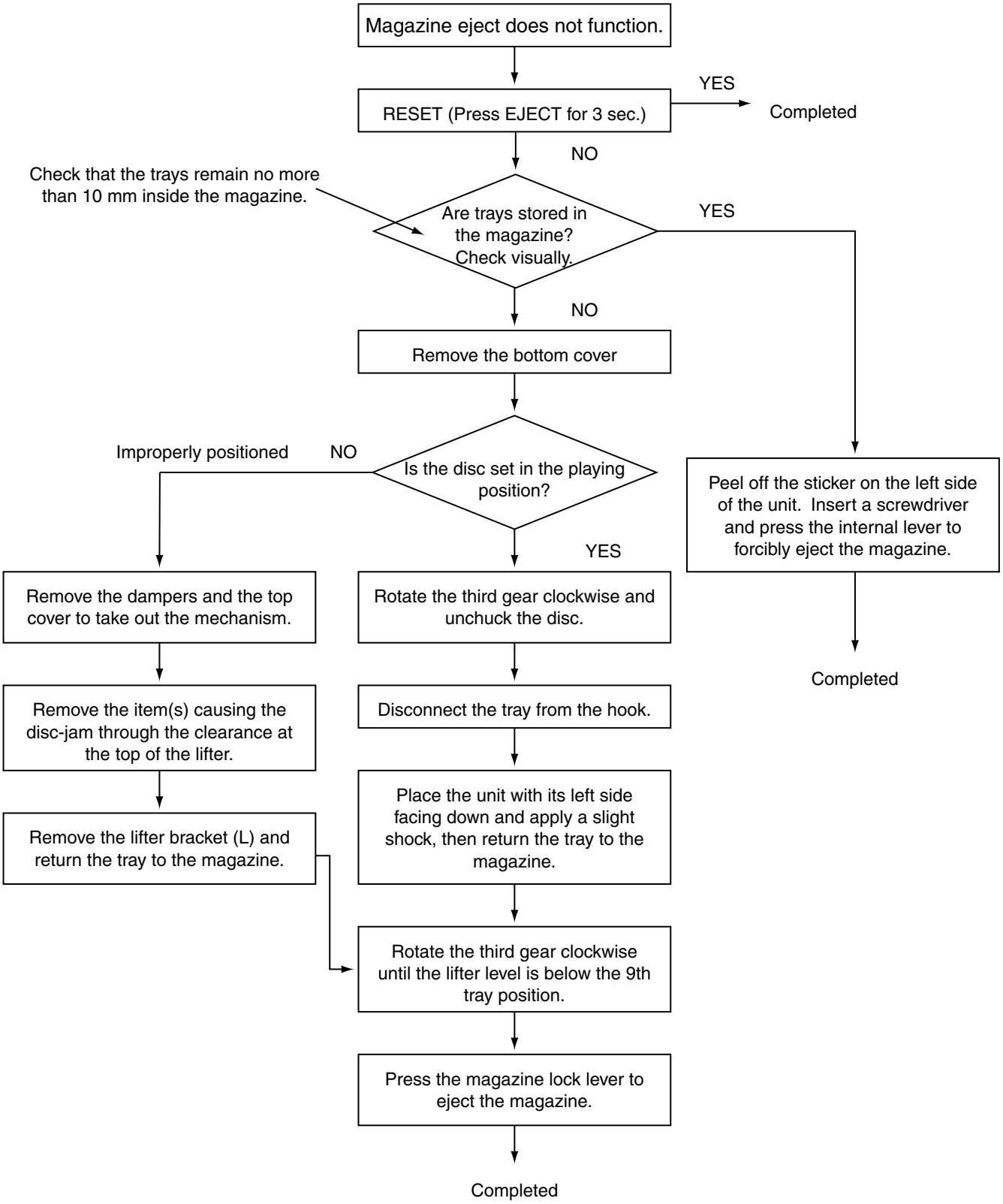


Fig. 55

Forced eject procedures


Magazine eject does not function.
RESET (Press EJECT for 3 sec.)
YES
Completed
NO
Check that the trays remain no more than 10 mm inside the magazine.
Are trays stored in the magazine? Check visually.
YES
NO
Remove the bottom cover
Improperly positioned
NO
Is the disc set in the playing position?
YES
Peel off the sticker on the left side of the unit. Insert a screwdriver and press the internal lever to forcibly eject the magazine.
Completed
Remove the dampers and the top cover to take out the mechanism.
Rotate the third gear clockwise and unchuck the disc.
Remove the item(s) causing the disc-jam through the clearance at the top of the lifter.
Disconnect the tray from the hook.
Remove the lifter bracket (L) and return the tray to the magazine.
Place the unit with its left side facing down and apply a slight shock, then return the tray to the magazine.
Rotate the third gear clockwise until the lifter level is below the 9th tray position.
Press the magazine lock lever to eject the magazine.
Completed

Troubleshooting

■ Servicing procedures for CH-X470RF error displays

Error display **Servicing procedure**

E1: Eject error

The magazine cannot be ejected until S601 (magazine switch) turns off.
Can the magazine be ejected? YES →1, NO → 2
1 The magazine switch (S601) does not turn off even though the magazine is completely ejected.
2 Check that the magazine is not engaged with the mechanism assembly.

E2: Position motor error

The lifter does not move up and down when exchanging or ejecting discs.
After resetting, check whether or not the lifter moves.YES→3, NO →4
3If the lifter exceeds the required disc position, check the lift position input. (IC601 pin 76)
If the lifter does not reach the required disc position, check the mechanism (mainly the lifter elevation mechanism)
4Check that voltage is present at the motor terminal.
If voltage is present, check the lifter elevation mechanism. If voltage is not present, separate the motor from the circuit and check again whether or not voltage is present.
If voltage is present, next check that the armature resistance of the position motor (resistance between motor terminals) is approx. 12 Ω.
If the resistance is excessively low (1 - 2 Ω), the motor is defective.

E3: Tray motor error

Trays cannot be opened or closed when exchanging or ejecting discs.
Does the tray move when changing or ejecting discs? YES →5, NO → 6
5Check that TRAY OUT SW (S602) and TRAY IN SW (S603) function correctly.

	S602 & IC601 pin (46)	S603 & IC601 pin (45)
When opening	H	L
When closing	L	H

6Check that the drive voltage is applied to the motor terminal.
If the voltage is present, check the tray mechanism.
If the voltage is not present, separate the motor from the circuit and check again whether or not the voltage is present.

E4: Pick returning error

Does the feed (pickup unit) return to the inner area of the disc when ejecting?
YES→7, NO→8, 9
7 Check the rest switch.
8If the feed gear is rotated, check the feed transfer mechanism
9If the feed gear is not rotated, check the motor driver and the pattern.

Other errors occurring in the receiver or controller.

E8: Connection error

When selecting the CD Changer mode using function keys, etc., the unit does not enter the CD changer mode, or the E8 error display appears. This signifies trouble relating to communications.
aCheck the connection cables between the CD changer and the receiver (CD changer controller).
bCheck the CD changer power cord and the fuse (including F901 on the PC board).
cCheck IC651 and its peripheral circuits.

★ The E1～E8 error displays described above may appear as E-1～E-8, 1E1～1E8, R-1～R-8, or RST1～RST8, depending on the product.

CH-X470RF Error code

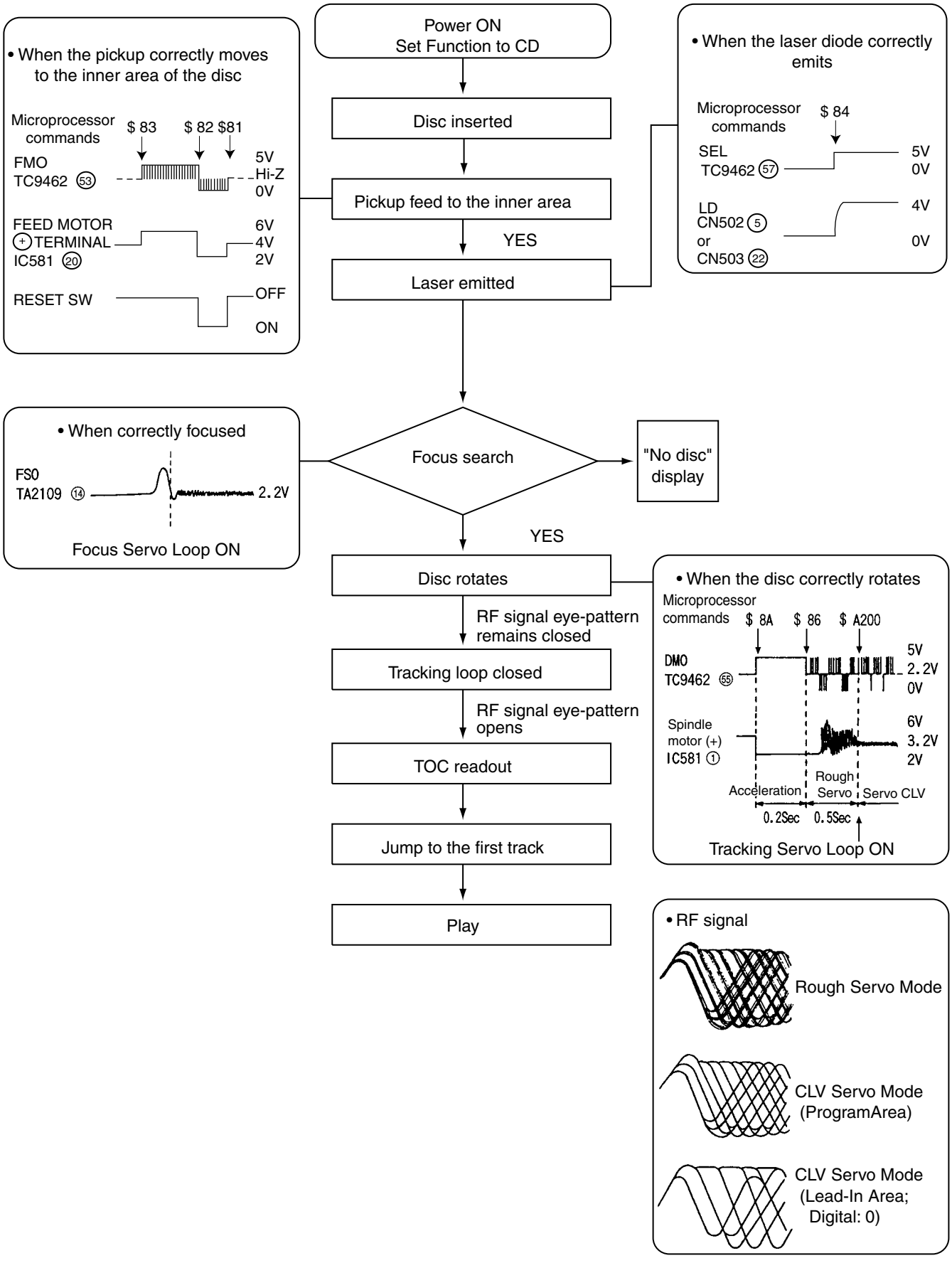
The following error codes can be displayed and stored in up to 3 memories when the KD-MX3000 is used with the controller. Refer to the KD-MX3000 service manual regarding error code indication.
The error code indication when using the earlier controller is the same as the CH-X99,KD-MK88 and other 12CD changer models.

CH-1 error code table

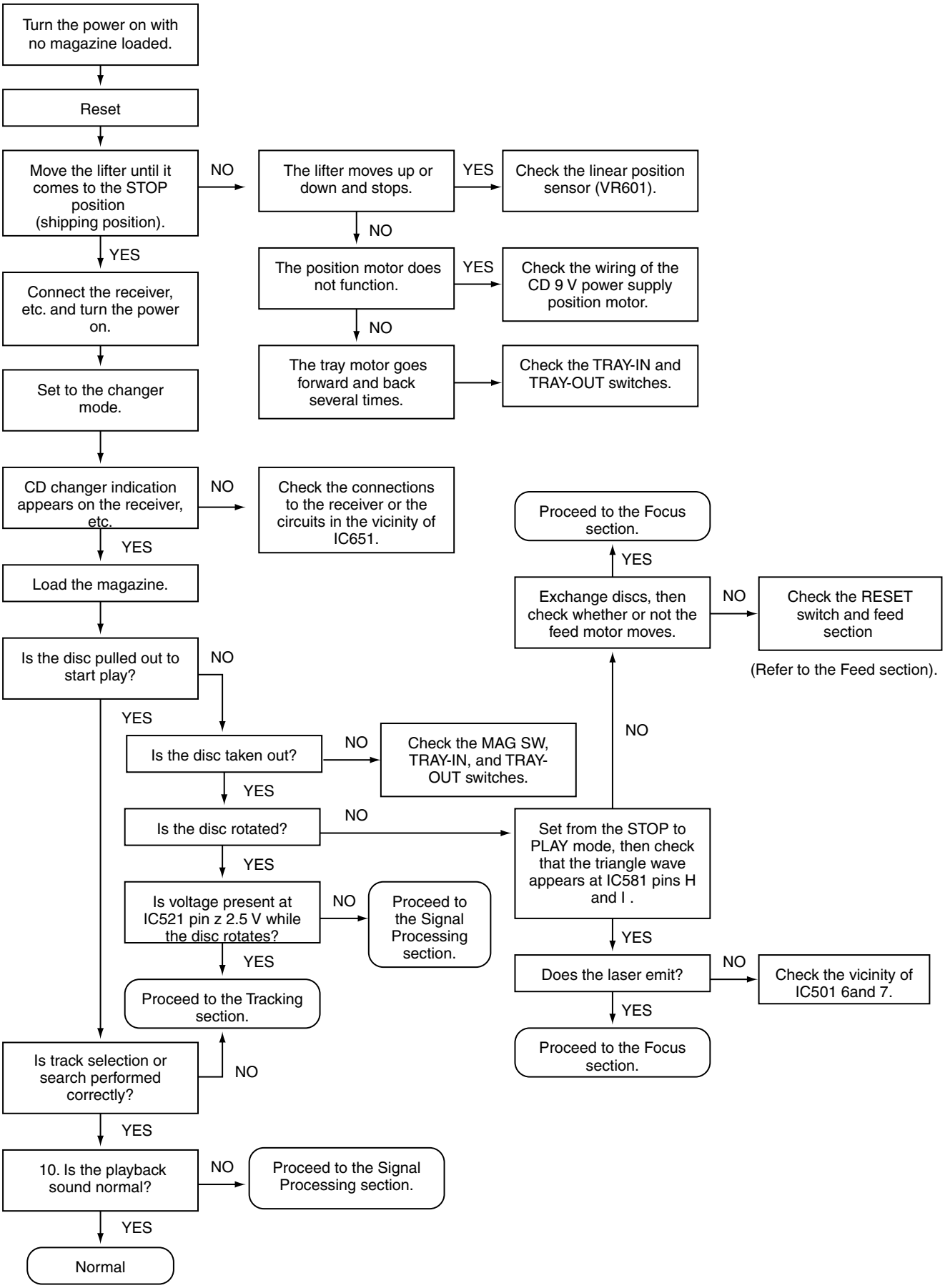
Generating condition		Description	Error code
Tray extension error	Tray-in switch time out (Tray-in switch Low, Tray-out switch High)	Tray stops part way	E1 03 00 11
	Tray-out switch time out (Tray-in switch High, Tray-out switch High)	Tray stops part way	E1 03 00 12
	Tray-in switch time out (Tray-in switch Low, Tray-out switch Low)	Tray-in switch faulty or other defect	E1 03 00 13
	MAG-in switch Low to High	Magazine removed when tray partly extende	E1 03 00 14
Tray retraction error	Tray-in switch time out (Tray-in switch Low, Tray-out switch Low)	Tray motor inoperative	E1 03 00 16
	Tray-out switch time out (Tray-in switch High, Tray-out switch High)	Tray retraction stops part way	E1 03 00 17
	Tray-in switch time out (Tray-in switch Low, Tray-out switch Low)	Tray-in switch faulty or other defect	E1 03 00 18
	MAG-in switch Low to High	Magazine removed when tray partly r etracted	E1 03 00 19
Lifter raise error	Wait position time out	Position motor inoperative	E1 02 00 21
	Wait position time out	Position not stable in fine adjust mode	E1 02 00 22
	Wait position time out	Other fault	E1 02 00 23
Lifter lower error	Wait position time out	Position motor inoperative	E1 02 00 26
	Wait position time out	Position not stable in fine adjust mode	E1 02 00 27
	Wait position time out	Other fault	E1 02 00 28
Chuck error	Play position time out	Position motor inoperative	E1 02 00 31
	Play position time out	Position not stable in fine adjust mode	E1 02 00 32
	Play position time out	Other fault	E1 02 00 33
Unchuck error	Wait position time out	Position motor inoperative	E1 02 00 36
	Wait position time out	Position not stable in fine adjust mode	E1 02 00 37
	Wait position time out	Other fault	E1 02 00 38
Eject error	Eject position time out	Position motor inoperative	E1 02 00 41
	Eject position time out	Eject position not attained	E1 02 00 42
	MAG in switch time out	Magazine not ejected	E1 02 00 43
Initialize error	Mechanism switch time out	Both Tray-in and Tray-out Low	E1 03 00 46
	Absolute position time out	Not stable at absolute position	E1 03 00 47

Note: The 1st error code is indicated by E1, while the 2nd and 3rd error codes are respectively indicated by E2 and E3.

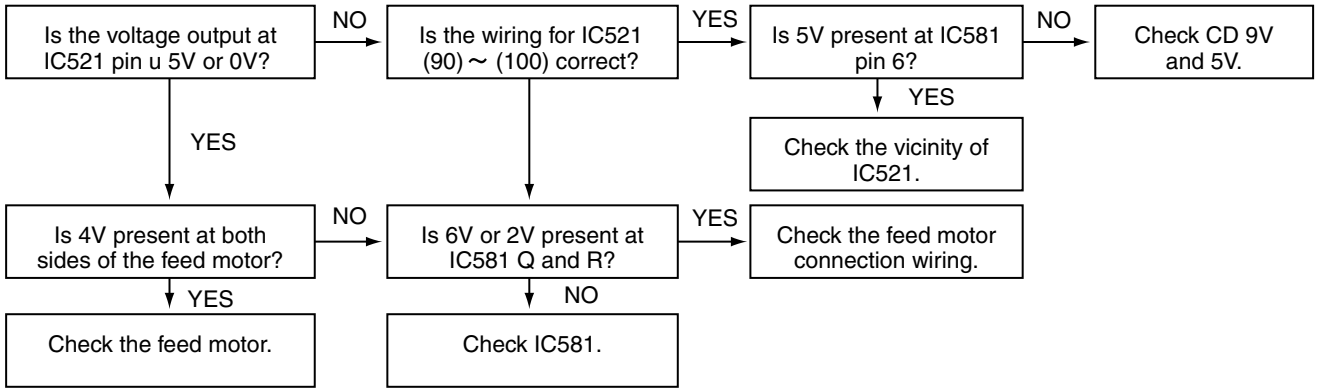
Flow of functional operation until TOC read



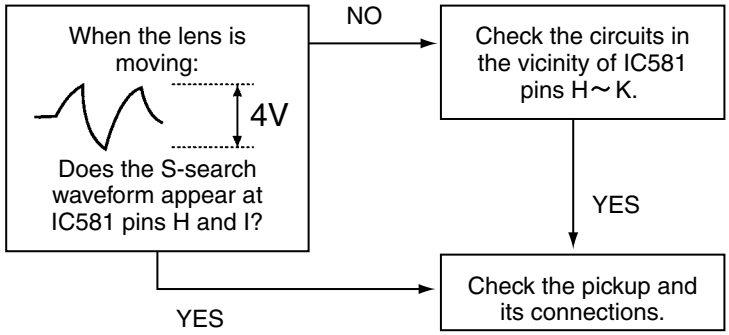
■General section


Turn the power on with no magazine loaded.
Reset
Move the lifter until it comes to the STOP position (shipping position).
NO
The lifter moves up or down and stops.
YES
Check the linear position sensor (VR601).
NO
YES
The position motor does not function.
YES
Check the wiring of the CD 9 V power supply position motor.
NO
The tray motor goes forward and back several times.
Check the TRAY-IN and TRAY-OUT switches.
Connect the receiver, etc. and turn the power on.
Set to the changer mode.
CD changer indication appears on the receiver, etc.
NO
Check the connections to the receiver or the circuits in the vicinity of IC651.
YES
Load the magazine.
Is the disc pulled out to start play?
NO
YES
Is the disc taken out?
NO
Check the MAG SW, TRAY-IN, and TRAY-OUT switches.
YES
Is the disc rotated?
NO
Set from the STOP to PLAY mode, then check that the triangle wave appears at IC581 pins H and I .
YES
Is voltage present at IC521 pin z 2.5 V while the disc rotates?
NO
Proceed to the Signal Processing section.
YES
Proceed to the Tracking section.
Is track selection or search performed correctly?
NO
YES
10. Is the playback sound normal?
NO
Proceed to the Signal Processing section.
YES
Normal
NO
Exchange discs, then check whether or not the feed motor moves.
NO
Check the RESET switch and feed section
(Refer to the Feed section).
YES
Proceed to the Focus section.
YES
Does the laser emit?
NO
Check the vicinity of IC501 6and 7.
YES
Proceed to the Focus section.

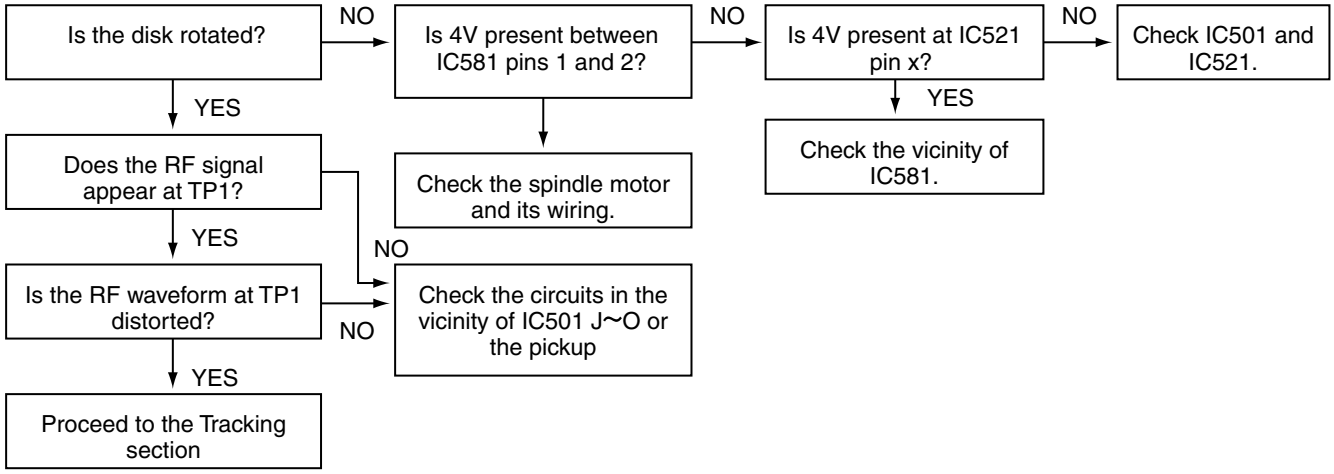
■Feed section


Is the voltage output at IC521 pin u 5V or 0V?
NO
Is the wiring for IC521 (90) ~ (100) correct?
YES
Is 5V present at IC581 pin 6?
NO
Check CD 9V and 5V.
YES
Check the vicinity of IC521.
YES
Is 4V present at both sides of the feed motor?
NO
Is 6V or 2V present at IC581 Q and R?
YES
Check the feed motor connection wiring.
YES
NO
Check the feed motor.
Check IC581.

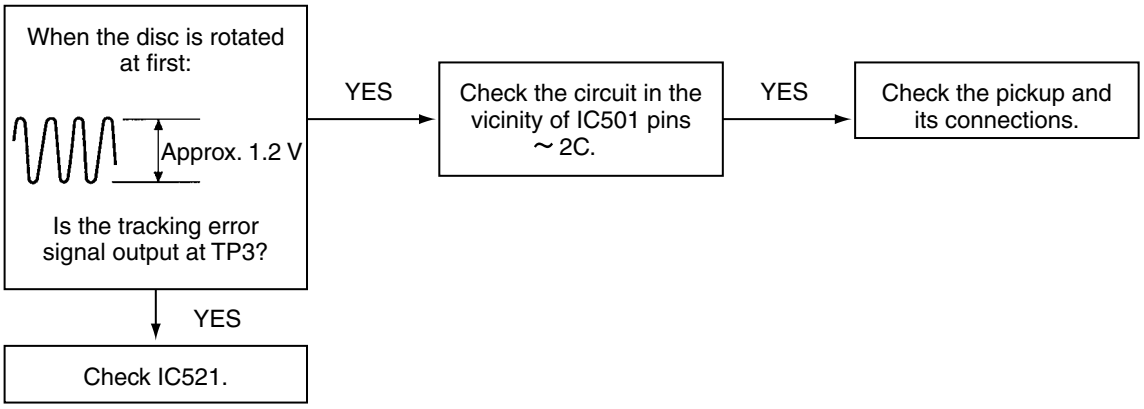
■Focus section


When the lens is moving:
4V
Does the S-search waveform appear at IC581 pins H and I?
NO
Check the circuits in the vicinity of IC581 pins H~K.
YES
YES
Check the pickup and its connections.

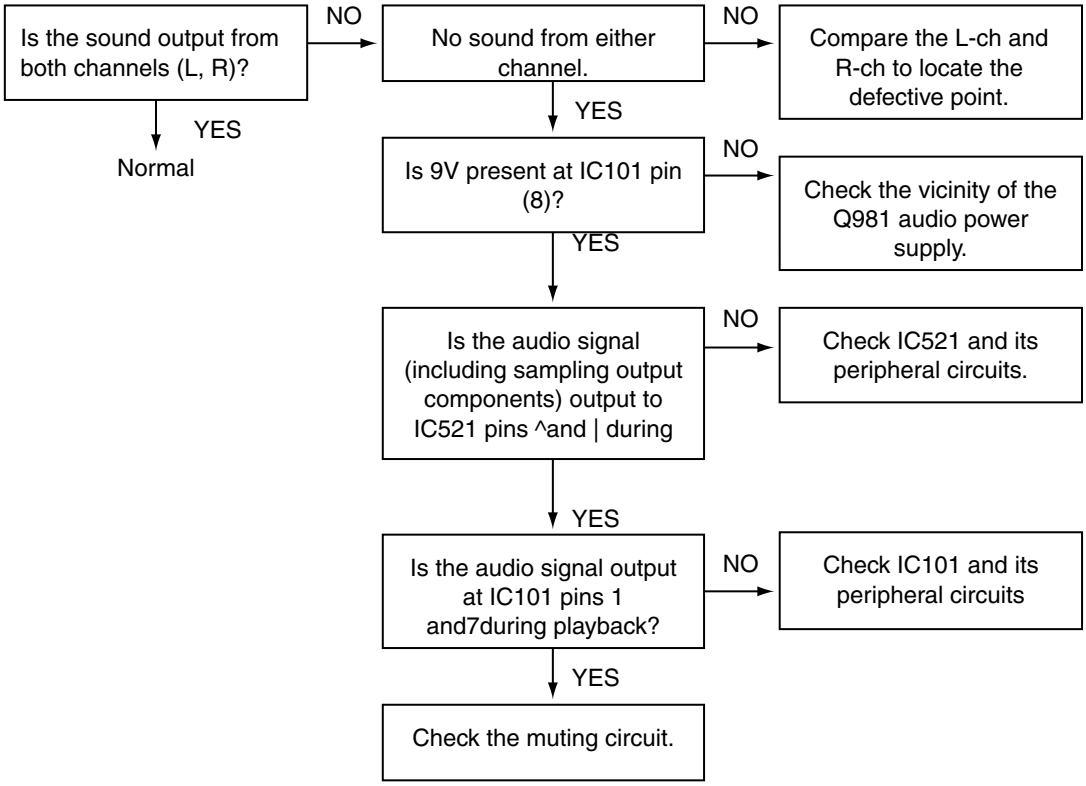
■Spindle section


Is the disk rotated?
NO
Is 4V present between IC581 pins 1 and 2?
NO
Is 4V present at IC521 pin x?
NO
Check IC501 and IC521.
YES
Check the vicinity of IC581.
YES
Does the RF signal appear at TP1?
Check the spindle motor and its wiring.
YES
NO
Is the RF waveform at TP1 distorted?
Check the circuits in the vicinity of IC501 J~O or the pickup
NO
YES
Proceed to the Tracking section

■Tracking section


When the disc is rotated at first:
Approx. 1.2 V
Is the tracking error signal output at TP3?
YES
Check the circuit in the vicinity of IC501 pins ~2C.
YES
Check the pickup and its connections.
YES
Check IC521.

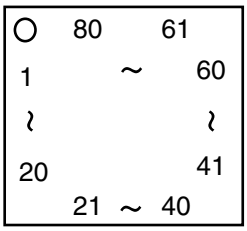
■Signal processing section


Is the sound output from both channels (L, R)?
NO
No sound from either channel.
NO
Compare the L-ch and R-ch to locate the defective point.
YES
Normal
YES
Is 9V present at IC101 pin (8)?
NO
Check the vicinity of the Q981 audio power supply.
YES
Is the audio signal (including sampling output components) output to IC521 pins ^and | during
NO
Check IC521 and its peripheral circuits.
YES
Is the audio signal output at IC101 pins 1 and7during playback?
NO
Check IC101 and its peripheral circuits
YES
Check the muting circuit.

Description of major ICs

■ UPD780058GC-291(IC601):CPU

1.Terminal layout

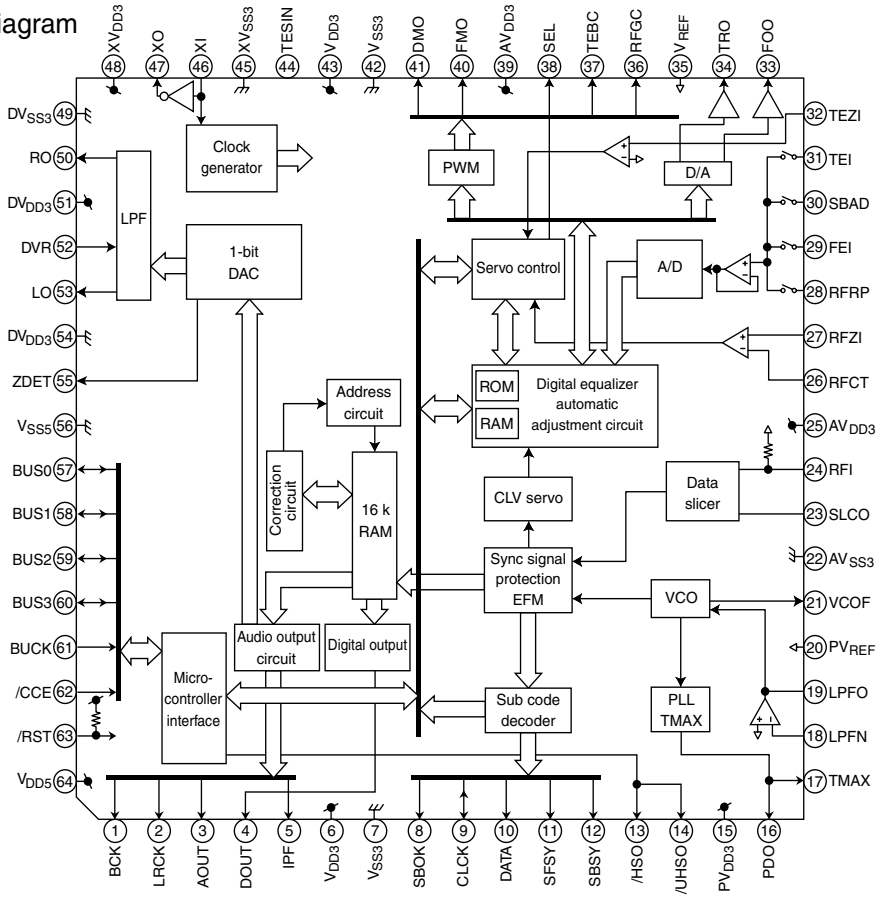


2.Pin function

Pin No.	PORT Name	I/O	Function	Pin No.	PORT Name	I/O	Function
1	LCDDA	O	LCD driver data output	41	CD RW	O	CD-RW Detect signal output
2	LCDSCK	O	LCD driver clock output	42	NC	-	Unused output port
3	LCDCE	O	LCD driver chip enable output	43	NC	-	Unused output port
4	GND	-	Connect to ground	44	MAG IN	-	Magazine switch Lo:magazine inserted
5	VREF	-	Reference voltage output	45	TRAY OUT	O	Tray extend switch Lo:extension complete
6	POSCON	O	Position control output	46	TRAY IN	O	Tray retract switch Lo:retraction complete
7	AVREF1	-	Connect to 5V	47	REST	I	Resr switch
8	NC	-	Unused output port	48	DISC SEL	O	Disc select output
9	NC	-	Unused output port	49	EMPH	O	Emphasis select output Hi:on
10	CDCHECK	I	CD check mode input. Reset only.	50	NC	-	Unused output port
11	EPROMDI	I/O	EEPROM data input	51	OE	-	Unused output port
12	EOROMDO	O	EEPROM data output. Hi durring input.	52	SHOCK SW	I	Shock proof switch signal input
13	EPROMCK	I/O	EEPROM clock input/output	53	SHOCK	O	Shock proof output
14	NC	-	Unused output port	54	NC	-	Unused output port
15	BUS I/O	O	JVC bus input/output control(Lo:input)	55	A.MUTE	-	Unused output port
16	BUS SI	I	JVC bus data input	56	MUTE PWR	O	Power supply for mute
17	BUS SO	O	JVC bus data output				
18	BUS SCK	I/O	JVC bus clock input/output	57	STAGE	I	LCD,AD key,remote inhibit selector Low:inhidit
19	NC	-	Unused output port	58	STAGE2	-	Unused output port
20	NC	-	Unused output port	59	EPROM CLR	I	EEPROM clear input Functional only dunng reset
21	NC	-	Unused output port	60	RESET	I	Reset input (includes flash write in function)
22	NC	-	Unused output port	61	REMOCON	I	Remote controller signal input
23	NC	-	Unused output port	62	PWR DET	I	Memory power detect input
24	NC	-	Unused output port	63	PWR SW	I	CRTL+B detect input
25	NC	-	Unused output port	64	BUS INT	I	JVC bus com start interrupt input
26	CD ON	O	CD power control Hi:on	65	EJECT	I	Eject key input
27	PWR CONT	O	Power supply control output Hi:on	66	NC	-	Unused output port
28	POSMO+	O	Position motor control output	67	GND	-	Connect to ground
29	POSMO-	O	Position motor control output	68	VDD0	-	Conneto to VDD
30	TRAYMO+	O	Tray motor control output	69	X2	O	Oscillater (4.19430 MHz)
31	TRAYMO-	O	Tray motor control output	70	X1	I	Oscillater (4.19430 MHz)
32	BUCK	-	CD LSI data clock	71	GND	-	Connect to ground
33	GND	-	Connect to ground	72	XT2	O	Open
34	LSI RESET	O	CD LSI reset	73	XT1	I	Connect to VDD
35	CCE	I/O	CD LSI chip enable	74	VDD	-	Connect to 5V
36	BUS0	I/O	CD LSI data 0(open drain)	75	AVREF0	-	Connect to ADCONT
37	BUS1	I/O	CD LSI data 1 (open drain)	76	L SENSOR	I	Linear sensor input(8 bit A/D input)
38	BUS2	I/O	CD LSI data 2 (open drain)	77	KEY1	I	Key input 1 (8 bit A/D input)
39	BUS3	O	CD LSI data 3 (open drain)	78	KEY2	I	Key input 2 (8 bit A/D input)
40	NC	-	Unused output port	79	KEY3	I	Key input 3 (8 bit A/D input)
				80	KEY0	I	Key input 0 (8 bit A.D input)

■ TC9490FA (IC521) : DSP

1. Pin layout & Block diagram



2. Pin function (1/2)

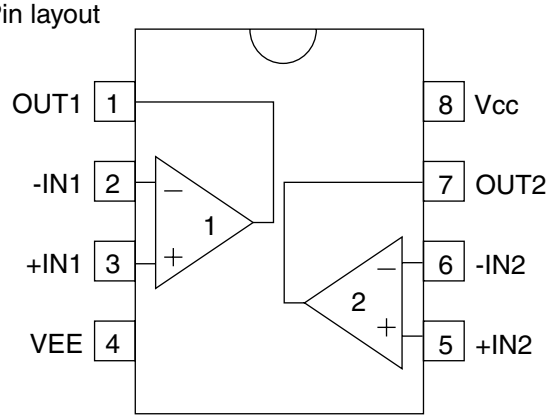
No.	Symbol	I/O	Function
1	BCK	O	Bit clock output pin.32fs, 48fs, or 64fs selectable by command.
2	LRCK	O	L/R channel clock output pin. "L" for L channel and "H" for R channel.
3	AOUT	O	Audio data output pin. MSB-first or LSB-first selected by command.
4	DOUT	O	Digital data output pin. Outputs up to double-speed playback.
5	IPF	O	Correction flog output pin.
6	VDD3	-	Digital 3.3V power supply voltage pin.
7	VSS3	-	Digital GND pin.
8	SBOK	O	Subcode Q data CRCC result output pin. "H" level when result is OK.
9	CLCK	I/O	Sub-code P-W data read clock I/O pin. I/O polarity selectable by command.
10	DATA	O	Sub-code P-W data output pin.
11	SFSY	O	Playback frames sync signal output pin.
12	SBSY	O	Sub-code block sync output pin.
13	/HSO	O	Playback speed mode flag output pin.
14	/UHSO	O	Playback speed mode flag output pin.
15	PVDD3	-	PLL-only 3.3V power supply voltage pin.
16	PDO	O	EFM and PLCK phase difference signal output pin.
17	TMAX	O	TMAX detection result output pin.
18	LPFN	I	Inverted input pin for PLL RF amp.
19	LPFO	O	Output pin for PLL LPF amp.
20	PVREF	-	PLL-only VREF pin.
21	VCOF	O	VCO filter pin.
22	AVSS3	-	Analog GND pin.
23	SLCO	O	DAC output pin for data slice level generation.
24	RFI	I	RF signal input pin.
25	AVSS3	-	Analog 3.3V power supply voltage pin.

2. Pin function (2/2)

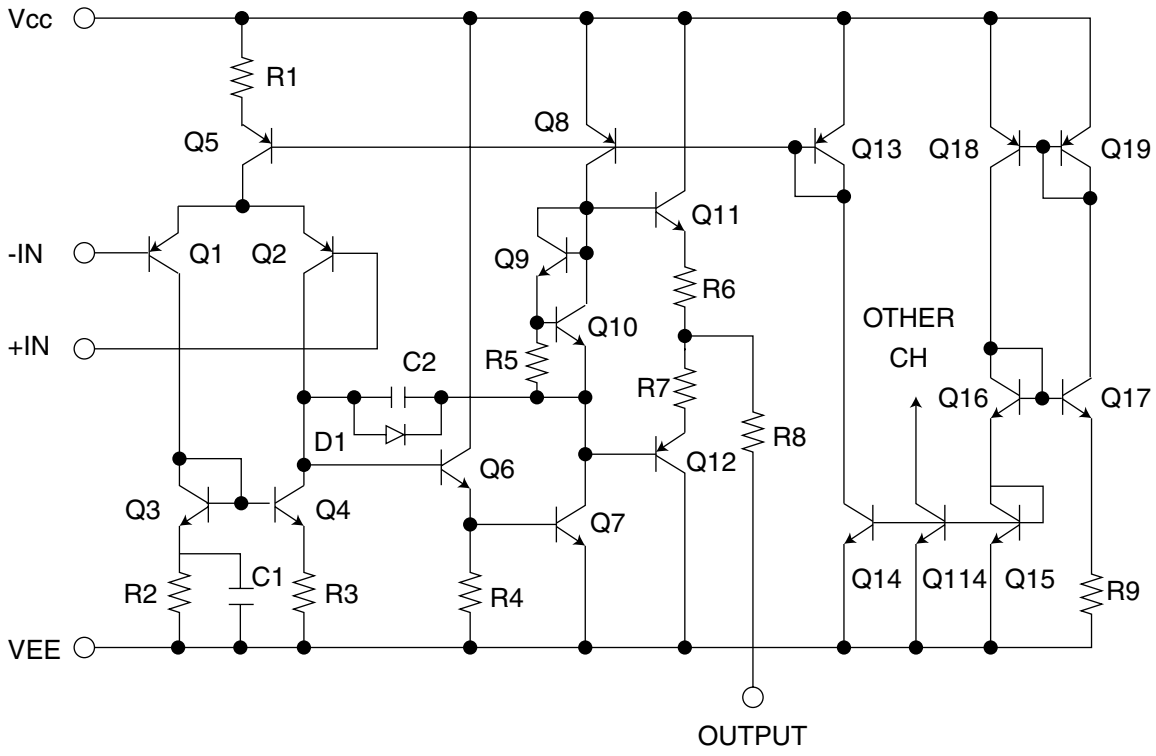
No.	Symbol	I/O	Function
26	RFCT	I	RFRP signal center level input pin.
27	RFZI	I	RFRP signal zero-cross input pin.
28	RFRP	I	RF ripple signal input pin.
29	FEI	I	Focus error signal input pin.
30	SBADTEI	I	Sub-beam adder signal input pin.
31	TEI	I	Tracking error input pin. Inputs when tracking servo is on.
32	TEZI	I	Tracking error signal zero-cross input pin.
33	FOO	O	Focus equalizer output pin.
34	TRO	O	Tracking equalizer output pin.
35	VREF	-	Analog reference power supply voltage pin.
36	RFGC	O	RF amplitude adjustment control signal output pin.
37	TEBC	O	Tracking barance control signal output pin.
38	SEL	O	APC circuit ON/OFF signal output pin.
39	AVDD3	-	Analog 3.3V power supply voltage pin.
40	FMO	O	Feed equalizer output pin.
41	DMO	O	Disc equalizer output pin.
42	VSS3	-	Digital GND pin.
43	VDD3	-	Digital 3.3V power supply voltage pin.
44	TESIN	I	Test input pin.
45	XVSS3	-	System clock oscillator GND pin.
46	XI	I	System clock oscillator input pin.
47	XO	O	System clock oscillator output pin.
48	XVDD3	-	System clock oscillator 3.3V power supply voltage pin.
49	DVSS3	-	DA converter GND pin.
50	RO	O	R-channel data foward output pin.
51	DVDD3	-	DA converter 3.3V power supply pin.
52	DVR	-	Reference voltage pin.
53	LO	O	L-channel data forward output pin.
54	DVSS3	-	DC converter GND pin.
55	ZDET	O	1 bit DA converter zero data detection flag output pin.
56	VSS5	-	Microcontroller interface GND pin.
57	BUS0	I/O	Microcontroller interface data I/O pins.
58	BUS1	I/O	Microcontroller interface data I/O pins.
59	BUS2	I/O	Microcontroller interface data I/O pins.
60	BUS3	I/O	Microcontroller interface data I/O pins.
61	BUCK	I	Microcontroller interface clock input pin.
62	/CCE	I	Microcontroller interface chip enable signal input pin.
63	/RST	I	Reset signal input pin.
64	VDD5	-	Microcontroller interface 5V power supply pin.

■BA15218F-XE (IC101) : Dual operation amplifier

1. Pin layout

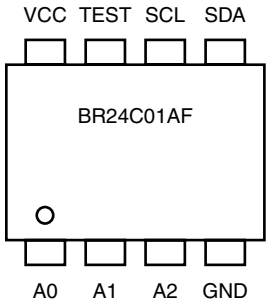


2. Block diagram

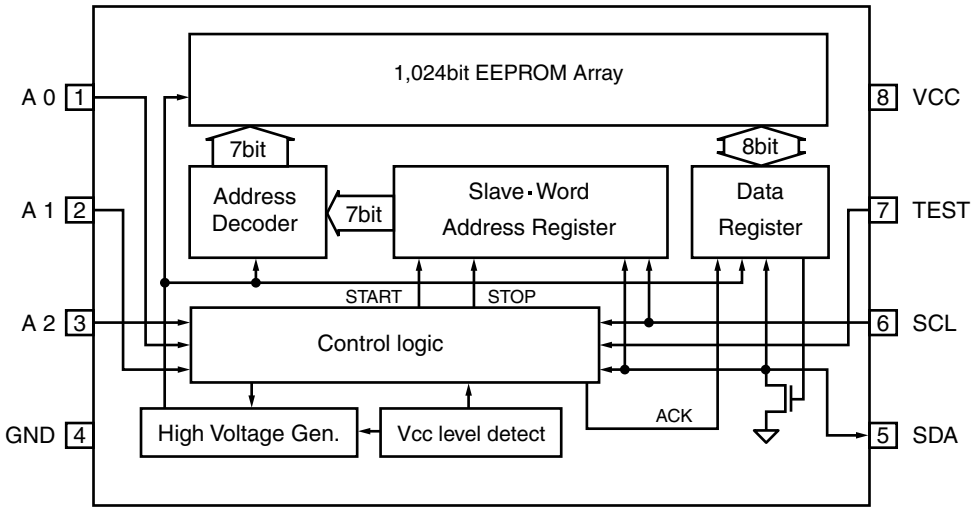


■ BR24CO1AF-X-W(IC604):EP ROM

1.Terminal Layout



2.Block Diagrram



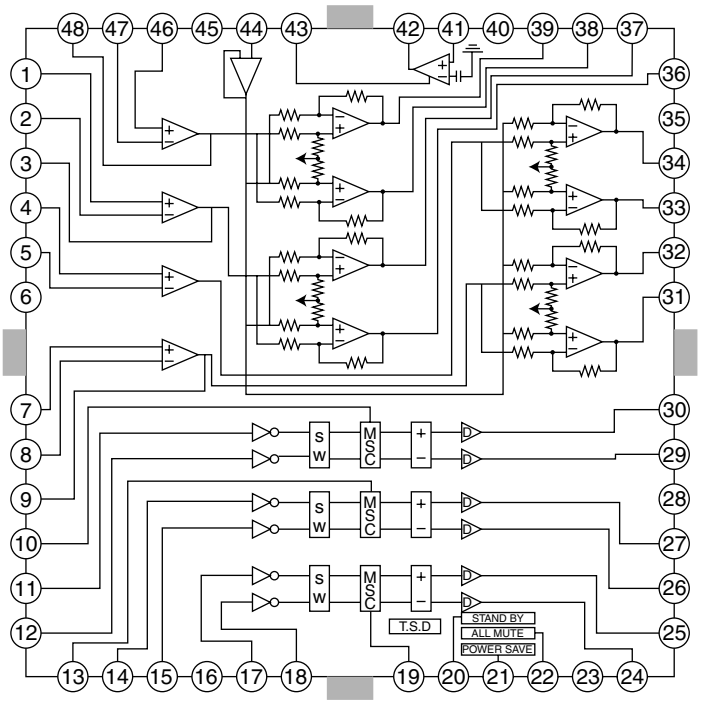
3.Pin Function

Symbol	I/O	Function
VCC	-	Puwer Supply
GND	-	Ground(OV)
A1･A2･A3	I	Slaves Address Set(Pin)
SCL	I	Serial Clock Input
SDA	I/O	Slaves and Word Address,Serial Data Input, Serial Data Output(*)
TEST	I	Ground

(*)An open drain output requires a pull-up resistor.

■ FAN8037 (IC581) : CD driver

1. Pin layout & Block diagram

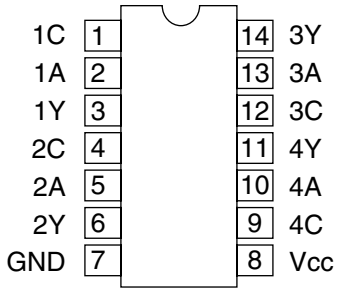


2. Pin function

Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	IN2+	I	CH2 op-amp input(+)	25	DO7+	O	CH7 drive output(+)
2	IN2-	I	CH2 op-amp input(-)	26	DO6-	O	CH6 drive output(-)
3	OUT2	O	CH2 op-amp output	27	DO6+	O	CH6 drive output(+)
4	IN3+	I	CH3 op-amp input(+)	28	PGND2	-	Power ground2
5	IN3-	I	Ch3 op-amp input(-)	29	DO5-	O	CH5 drive output(-)
6	OUT3	O	CH3 op-amp output	30	DO5+	O	CH5 drive output(+)
7	IN4+	I	CH4 op-amp input(+)	31	DO4-	O	CH4 drive output(-)
8	IN4-	I	CH4 op-amp input(-)	32	DO4+	O	CH4 drive output(+)
9	OUT4	O	CH4 op-amp output(+)	33	DO3-	O	CH3 drive output(-)
10	CTL1	I	CH5 motor speed control	34	DO3+	O	CH3 drive output(+)
11	FWD1	I	CH5 forward input	35	PGND1	-	Power ground1
12	REV1	I	CH5 reverse input	36	DO2-	O	CH2 drive output(-)
13	CTL2	I	CH6 motor speed control	37	DO2+	O	CH2 drive output(+)
14	FWD2	I	CH6 forward input	38	DO1-	O	CH1 drive output(-)
15	REV2	I	CH6 reverse input	39	DO1+	O	CH1 drive output(+)
16	SGND	-	Signal ground	40	PVCC1	-	Power supply voltage
17	FWD3	I	CH7 forward input	41	REGOX	I	Regulator feedback input
18	REV3	I	CH7 reverse input	42	REGX	O	Regulator output
19	CTL3	I	CH7 motor speed control	43	RESX	I	Regulator reset input
20	SB	I	Stand by	44	VREF	I	Bias voltage input
21	PS	I	Power save	45	SVCC	-	Signal supply voltage
22	MUTE	I	All mute	46	IN1+	I	CH1 op-amp input(+)
23	PVCC2	-	Power supply voltage	47	IN1-	I	CH1 op-amp input(-)
24	DO7-	O	CH7 drive output(-)	48	OUT1	O	CH1 op-amp output

■ HD74HC126FP-X (IC651) : Buffer

1.Terminal layout

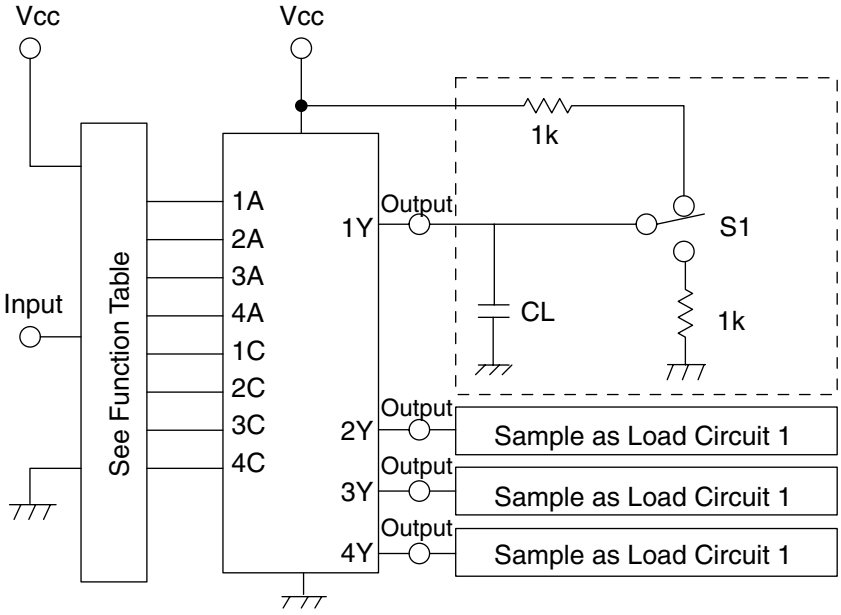


3.Pin function

Input		Output
C	A	Y
L	X	Z
H	L	H
H	H	L

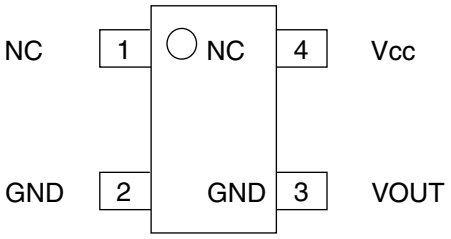
Note: H : High
L : Low
X : H and L
Z : H.L.X

2.Block diagram

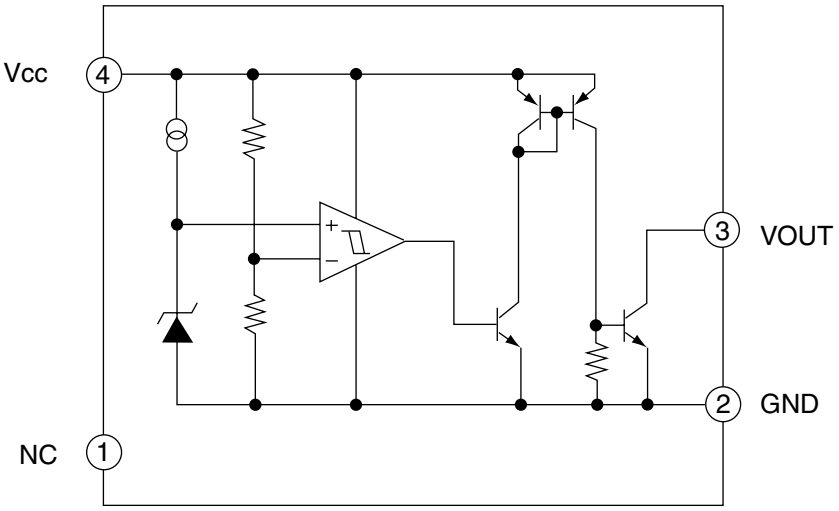


■ IC-PST9333U-X (IC602) : Reset IC

1. Pin layout



2. Block diagram

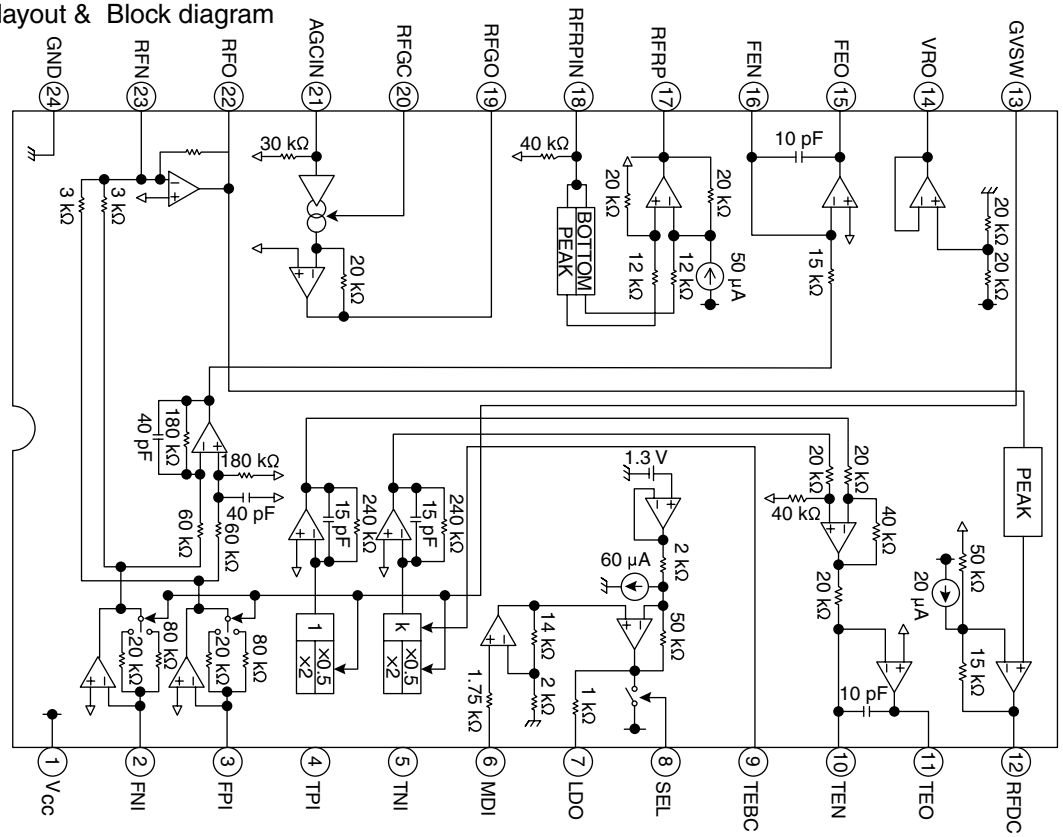


3. Pin function

Pin No.	Symbol	Function
1	NC	Non connect
2	GND	GND terminal
3	VOUT	Reset signal output terminal
4	Vcc	Power supply terminal

■ TA2147F-X (IC501) : RF amp

1. Pin layout & Block diagram



2. Pin function

Pin No.	Symbol	I/O	Function
1	Vcc	-	3.3V power supply pin
2	FNI	I	Main-beam amp input pin
3	FPI	I	Main-beam amp input pin
4	TPI	I	Sub-beam amp input pin
5	TNI	I	Sub-beam amp input pin
6	MDI	I	Monitor photo diode amp input pin
7	LDO	O	Laser diode amp output pin
8	SEL	I	APC circuit ON/OFF control signal, laser diode control signal input or bottom/peak detection frequency change pin
9	TEBC	I	Tracking error balance adjustment signal input pin
10	TEN	I	Tracking error signal generation amp negative-phase input pin
11	TEO	O	Tracking error signal generation amp output pin
12	RFDC	O	RF signal peak detection output pin
13	GVSW	I	AGC/FE/TE amp gain change pin
14	VRO	O	Reference voltage output pin
15	FEO	O	Focus error signal generation amp output pin
16	FEN	I	Focus error signal generation amp negative-phase input pin
17	RFRP	O	Signal amp output pin for track count
18	RFRPIN	I	Signal generation amp input pin for track count
19	RFGO	O	RF signal amplitude adjustment amp output pin
20	RFGC	I	RF amplitude adjustment control signal input pin
21	AGCIN	I	RF signal amplitude adjustment amp input pin
22	RFO	O	RF signal generation amp output pin
23	RFN	I	RF signal generation amp input pin
24	GND	-	GND pin

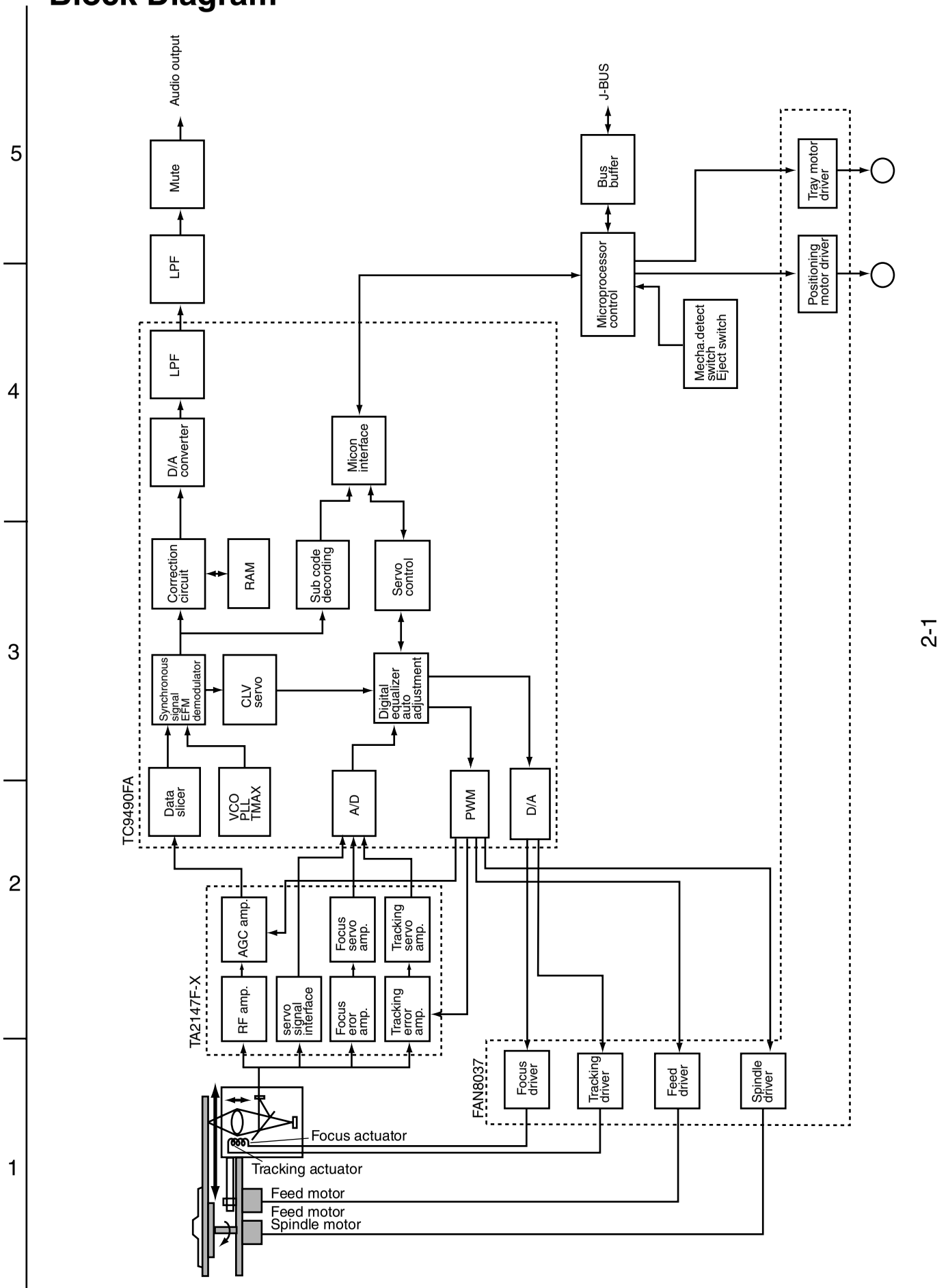
JVC

VICTOR COMPANY OF JAPAN, LIMITED
MOBILE ELECTRONICS DIVISION
PERSONAL & MOBILE NETWORK BUSINESS UNIT. 10-1,1Chome,Ohwatari-machi,Maebashi-city,371-8543,Japan

200112

(No.49668)

Block Diagram



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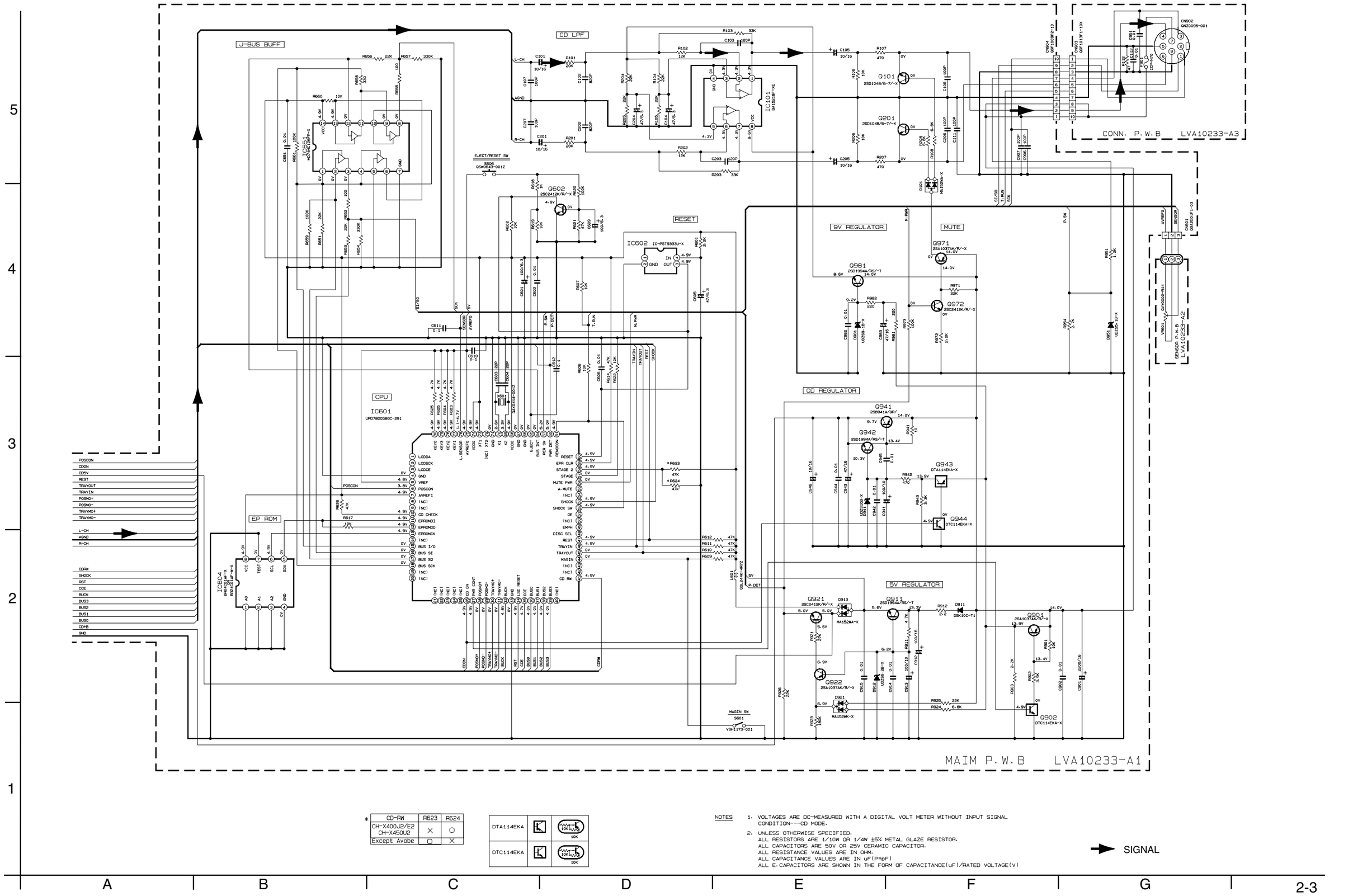
Standard schematic diagrams

■ Main circuit 1/2



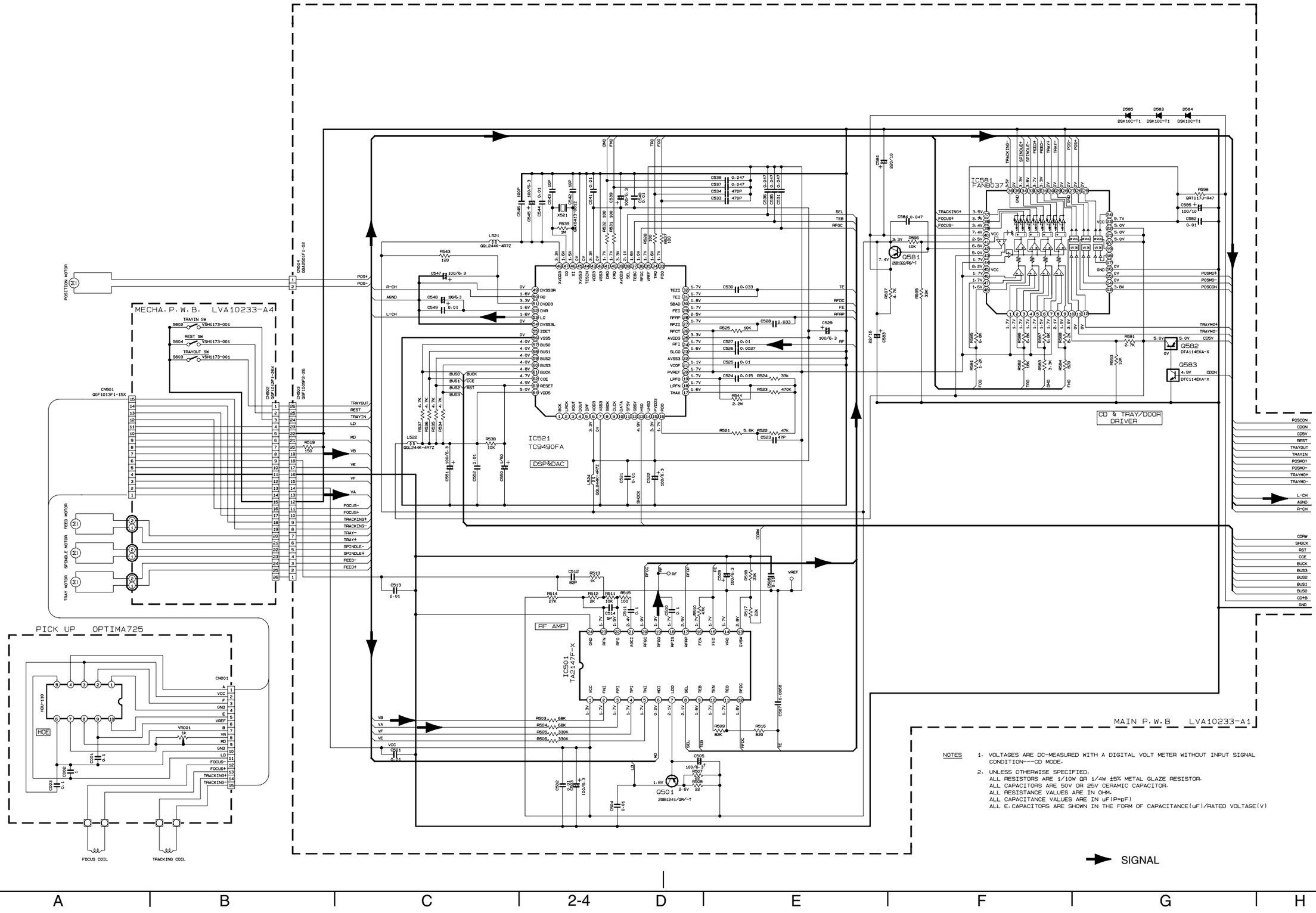
*	CD-RW	R623	R624
	CH-X400J2/E2 CH-X450U2	×	○
	Except Avobe	○	×

DTA114EKA		10K
DTC114EKA		10K

NOTES
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL CONDITIION---CD MODE.
2. UNLESS OTHERWISE SPECIFIED.
   ALL RESISTORS ARE 1/10W OR 1/4W ±5% METAL GLAZE RESISTOR.
   ALL CAPACITORS ARE 50V OR 25V CERAMIC CAPACITOR.
   ALL RESISTANCE VALUES ARE IN OHM.
   ALL CAPACITANCE VALUES ARE IN uF(P=pF)
   ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(uF)/RATED VOLTAGE(V)

→ SIGNAL

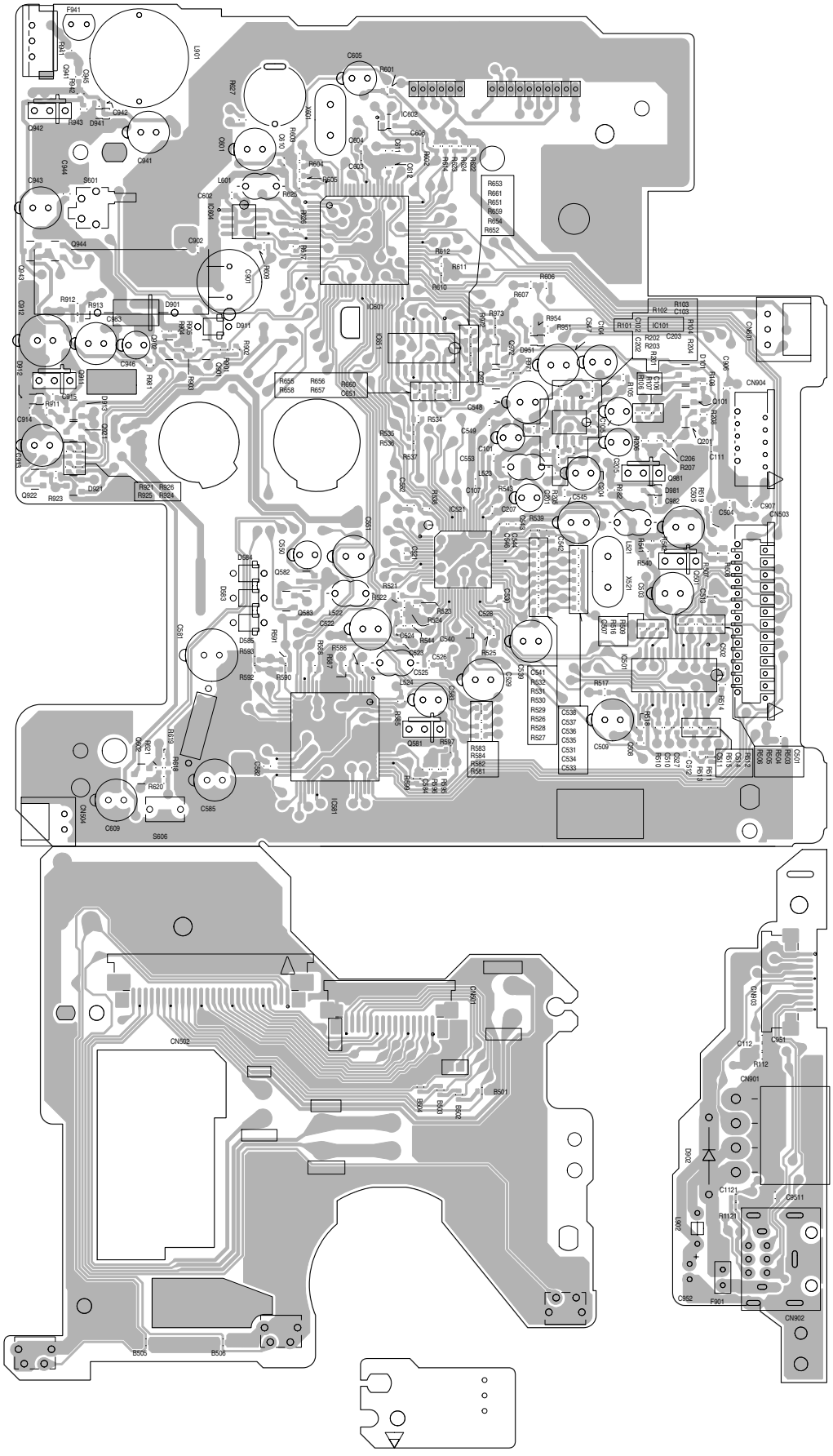
■ Main circuit 2/2



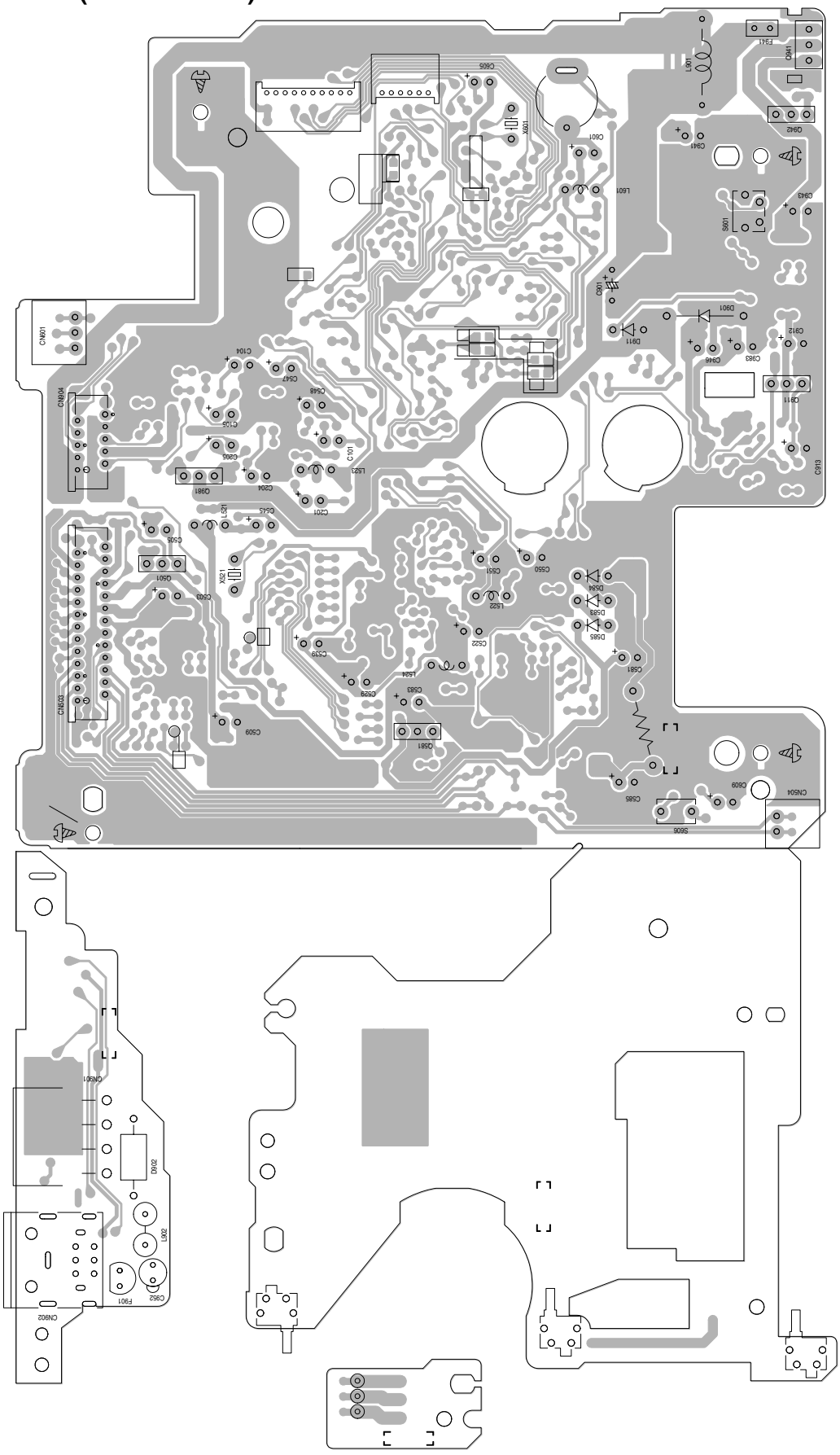
NOTES
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL CONDITION---CD MODE.
2. UNLESS OTHERWISE SPECIFIED.
   ALL RESISTORS ARE 1/10W OR 1/4W ±5% METAL GLAZE RESISTOR.
   ALL CAPACITORS ARE 50V OR 25V CERAMIC CAPACITOR.
   ALL RESISTANCE VALUES ARE IN OHM.
   ALL CAPACITANCE VALUES ARE IN uF(P=pF)
   ALL E.CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(uF)/RATED VOLTAGE(V)

Printed circuit boards

■ Main board(Forward side)



■ Main board(Reverse side)



< MEMO >

PARTS LIST

[CH-X470RF]

* All printed circuit boards and its assemblies are not available as service parts.

Area suffix

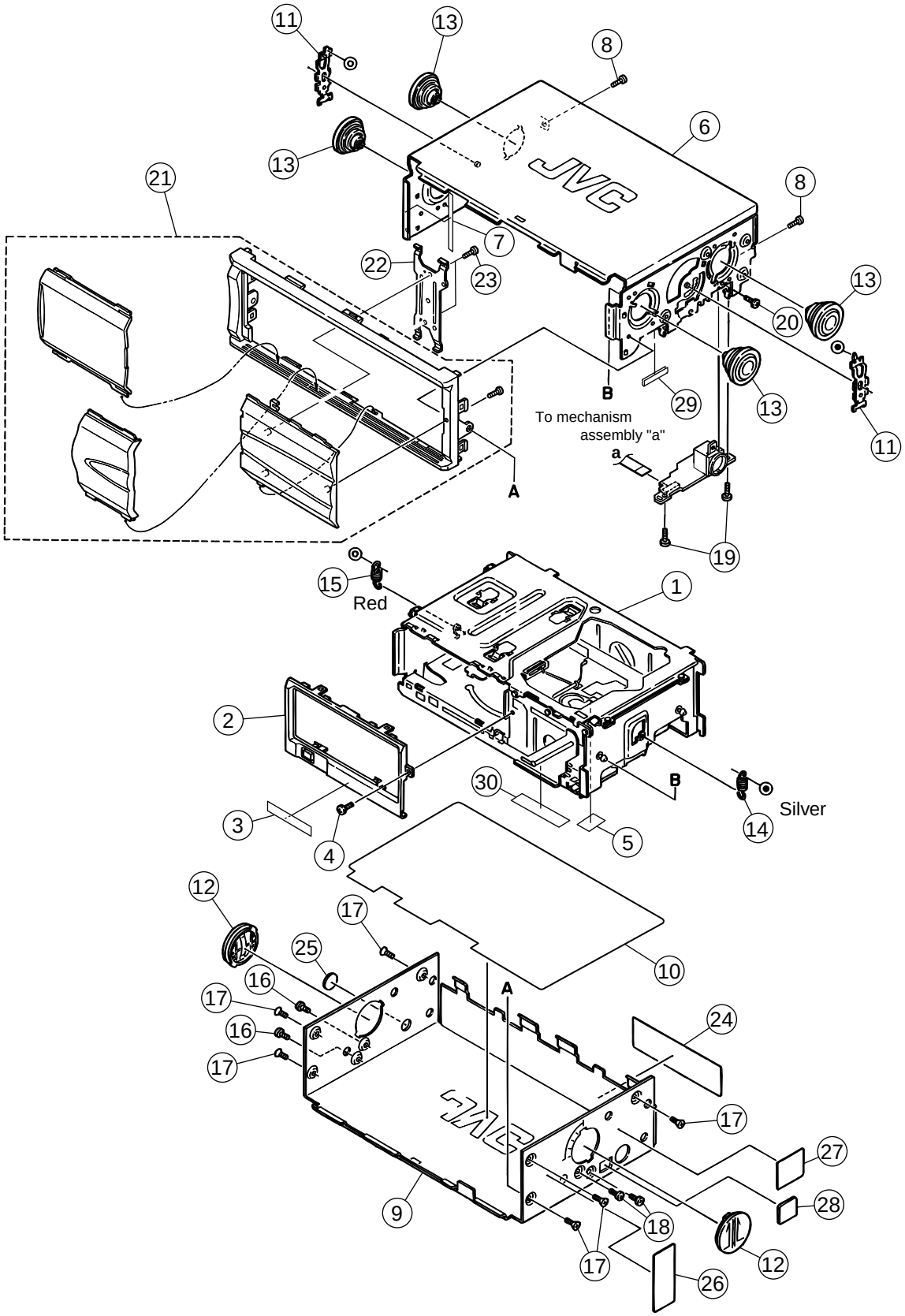
J ---------- Northern America

- Contents -

Exploded view of general assembly and parts list (Block No.M1) ---------- 3- 2
CD changer mechanism assembly and parts list (Block No.MA) ---------- 3- 4
Electrical parts list (Block No.01) ---------- 3- 7
Packing materials and accessories parts list (Block No.M3,M5) ---------- 3-10

Exploded view of general assembly and parts list

Block No. M 1 M M



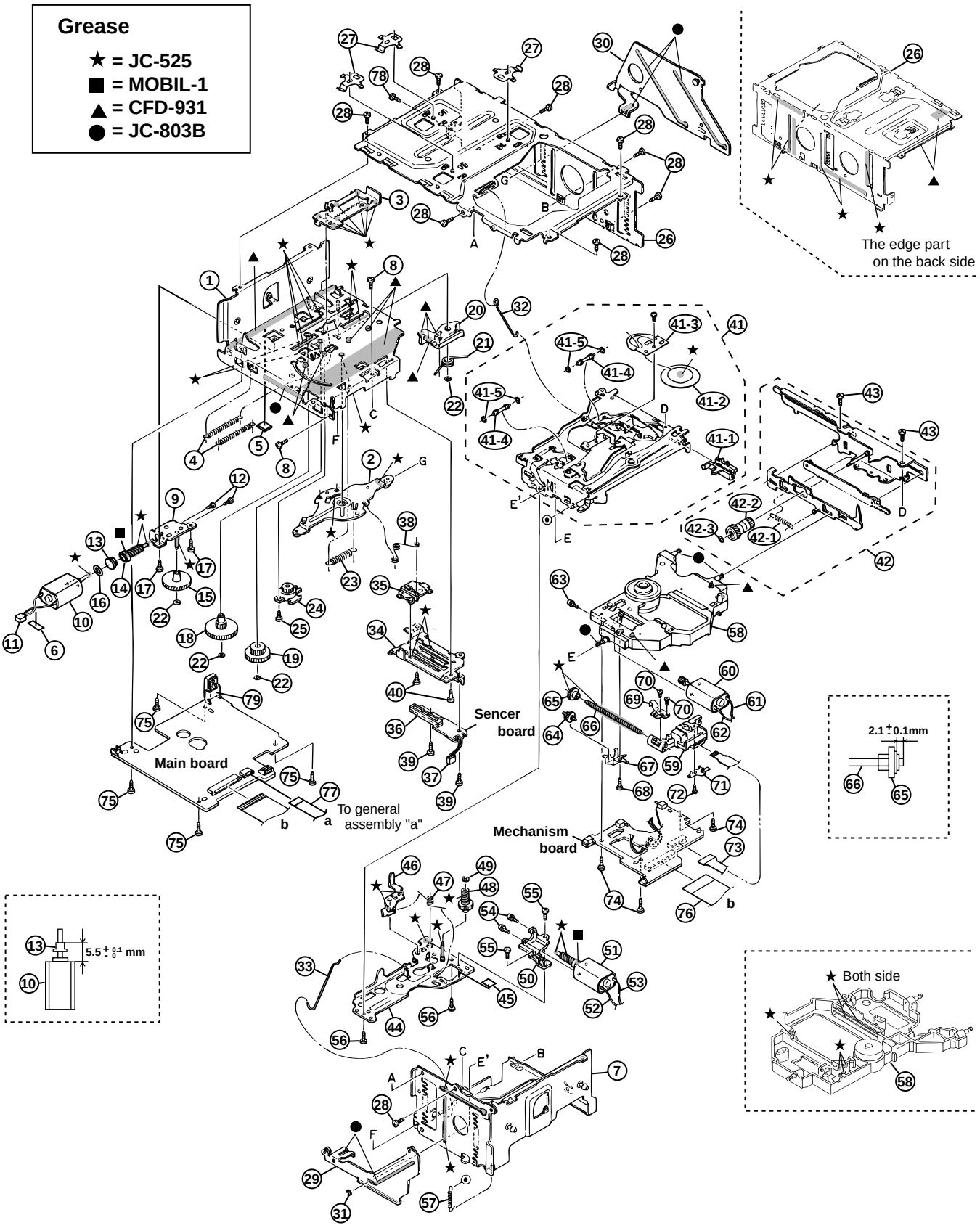
■ Parts list (General assembly)

Block No. M1MM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	1	----------	CD CHANGER MECHA	1		
	2	LV20065-004B	FITTING	1		
	3	LV40706-003A	CAUTION LABEL	1		
	4	QYSDST2004Z	SCREW	1		
	5	LV41266-001A	SPACER	1		
	6	LV10407-006A-SL	TOP COVER	1		
	7	VYSH101-031	SPACER	1		
	8	QYSSST2005M	SCREW	2	TOP	
	9	LV10408-006A-SL	BOTTOM COVER	1		
	10	LV30632-001A	INSULATOR	1		
	11	LV42152-001A	BRACKET	2		
	12	LV30360-004A	DIRECTION KNOB	2	BOTTOM REAR SIDE	
	13	LV30451-002A	DAMPER	4		
	14	LV40345-003A	DAMPER SP(R)	1		
	15	LV40346-003A	DAMPER SP(L)	1		
	16	QYSDST2604M	SCREW	2		
	17	QYSSST2605M	SCREW	6		
	18	QYSDST2604M	SCREW	2		
	19	QYSDST2005Z	SCREW	2	PWB+TOP	
	20	QYSDST2606Z	SCREW	1	8P+TOP	
	21	LV20923-010B	F.PANEL ASSY	1		
	22	LV30786-003A	HOLD BRACKET	1		
	23	QYSDSF2005Z	SCREW	2	DOOR-3+HOLD BKT	
	24	LV33324-001A	NAME PLATE	1		
	25	VYSS2R2-028	SPACER	1		
	26	LV40762-001A	CAUTION LABEL	1		
	27	LV40487-003A	CAUTION LABEL	1		
	28	LV40528-005A	LABEL	1		
	29	VYSA1R4-056	SPACER	1		
	30	LV40847-001A	SPACER(H)	1		

CD changer mechanism assembly and parts list

Block No. M A M M



■ Parts list (CD changer mechanism)

Block No. MAMM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	1	LV30096-004A	CHASSIS(L)ASSY	1		
	2	LV40123-006A	LIFT ARM ASSY	1		
	3	LV30098-003A	EJECT SLIDER	1		
	4	LV40126-005A	EJECT SPRING	2		
	5	VYSH102-102	SPACER	1		
	6	VYSA1R4-056	SPACER	1		
	7	LV30097-001A	CHASSIS(R) ASSY	1		
	8	QYSDST2004Z	SCREW	2		
	9	LV42097-001A	MOTOR BKT ASS'Y	1		
	10	PPN-13KA10C	MOTOR	1		
	11	WJM0017-001A	E-SI C WIRE C-F	1		
	12	QYSPSPT2025M	MINI SCREW	2		
	13	LV32442-001A	WORM DRIVE	1		
	14	LV32440-001A	WORM GEAR	1		
	15	LV32441-001A	WORM WHEEL(P)	1		
	16	QYWFM164025	WASHER	1		
	17	QYSDST2004Z	SCREW	2		
	18	LV40132-003A	THIRD GEAR	1		
	19	LV40133-005A	LIFTER GEAR	1		
	20	LV30100-002A	APLOCK ARM	1		
	21	LV40134-003A	M.LOCK SPRING	1		
	22	QYWDL163525-6	SLIT WASHER	4		
	23	LV40142-003A	LIFTER SPRING	1		
	24	LV40478-002A	EJECT DAMPER	1		
	25	QYSDSR2006Z	SCREW	1		
	26	LV10027-002A	TOP COVER	1		
	27	LV30101-004A	MAGAZINE SPRING	3		
	28	QYSDST2004Z	SCREW	9		
	29	LV30448-001A	FRONT SLIDER AS	1		
	30	LV30449-001A	REAR SLIDER ASS	1		
	31	LV42132-001A	E RING	1		
	32	LV40135-004A	ROD(U)	1		
	33	LV40136-003A	ROD(L)	1		
	34	LV30104-002A	SENSOR BRACKET	1		
	35	LV30105-001A	SENSOR HOLDER	1		
	36	QVY0002-B14	S V RESISTOR	1		
	37	WJM0017-002A	E-SI C WIRE C-F	1		
	38	LV40137-002A	SENSOR SPRING	1		
	39	QYSDST2004Z	SCREW	2		
	40	QYSDST2004Z	SCREW	2		
	41	LV20067-002A	LIFTER UNIT	1		
	41-1	LV30110-001A	HOOK	1		
	41-2	VKR3203-001	CLAMPER	1		
	41-3	VKL7938-001	CLAMPER GUIDE	1		
	41-4	VKS5587-002	DETECT ROLLER	2		
	41-5	VKZ4563-005	O RING	4		
	42	LV30148-004A	SIDE BKT UNIT	1		
	42-1	LV40190-002A	RETURN SP.(R)	1		

■ Parts list (CD changer mechanism)

Block No. MAMM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	42-2	LV40148-003A	TRAY GEAR	1		
	42-3	QYWDL163525-6	SLIT WASHER	1		
	43	QYSDST2004Z	SCREW	2		
	44	LV40149-003A	L.BKT(L) ASSY	1		
	45	VYSA1R4-088	SPACER	1		
	46	LV30119-002A	SWITCH LEVER	1		
	47	LV40151-002A	SWITCH SPRING	1		
	48	LV40152-001A	WORM WHEEL(T)	1		
	49	REE1500X	E.RING	1		
	50	LV30120-001A	T.MOTOR HOLDER	1		
	51	PPN-13KA10C	MOTOR	1		
	52	QUB540-10A2A2	WIRE(T.MOTOR)	1		
	53	QUB541-11A2A2	WIRE(T.MOTOR)	1		
	54	QYSPSPL2004Z	SCREW	2		
	55	QYSDST2004Z	SCREW	2		
	56	QYSDST2004Z	SCREW	2		
	57	LV40474-003A	ELEVATOR SPRING	1		
	58	LV32806-001A	TRA MECHA UNIT	1		
	59	OPTIMA-725B1M	CD PICK UP	1		
	60	FF-050SK-11170	DC MOTOR	1		
	61	QUB456-04A2A2	WIRE(F.MOTOR)	1		
	62	QUB459-05A2A2	WIRE(F.MOTOR)	1		
	63	QYSPSPL2004Z	SCREW	1		
	64	LV40155-001A	MIDDLE GEAR	1		
	65	LV40156-001A	S.S. GEAR	1		
	66	LV40157-001A	SCREW SHAFT	1		
	67	LV30122-002A	SHAFT HOLDER	1		
	68	VKZ4248-204	MINI TAP SCREW	1		
	69	LV30123-001A	RACK ARM	1		
	70	QYSPSPT1722M	MINI SCREW	2		
	71	LV32438-001A	P.S.SPRING	1		
	72	QYSPSGT1425M	TAP SCREW	1		
	73	LV30450-004A	PICK FPC	1		
	74	QYSDST2006Z	SCREW	3		
	75	QYSDST2005Z	SCREW	4		
	76	QUQ710-2614BJ	FFC WIRE	1		
	77	QUQ110-1013BJ	FFC WIRE	1		
	78	QYSDSP2606Z	SCREW	1		
	79	VKL7059-002	P.W.B.BRACKET	1		

■ **Electrical parts list (Main board)** **Block No. 01**

⚠	Item	Parts number	Parts name	Remarks	Area
	C 101	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 102	NCS31HJ-821X	C CAPACITOR		
	C 103	NCS31HJ-121X	C CAPACITOR		
	C 104	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 105	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 106	NCS31HJ-101X	C CAPACITOR		
	C 107	NCS31HJ-101X	C CAPACITOR		
	C 111	NCS31HJ-101X	C CAPACITOR		
	C 112	NCB31HK-103X	C CAPACITOR		
	C 201	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 202	NCS31HJ-821X	C CAPACITOR		
	C 203	NCS31HJ-121X	C CAPACITOR		
	C 204	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 205	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 206	NCS31HJ-101X	C CAPACITOR		
	C 207	NCS31HJ-101X	C CAPACITOR		
	C 501	NCB31HK-103X	C CAPACITOR		
	C 502	NCB31HK-103X	C CAPACITOR		
	C 503	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 504	NCB31HK-103X	C CAPACITOR		
	C 505	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 507	NCB31HK-682X	C CAPACITOR		
	C 508	NCB31HK-103X	C CAPACITOR		
	C 509	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 510	NCB31CK-104X	C CAPACITOR		
	C 511	NCB31CK-104X	C CAPACITOR		
	C 512	NCS31HJ-820X	C CAPACITOR		
	C 513	NCB31HK-103X	C CAPACITOR		
	C 514	NDC31HJ-5R0X	C CAPACITOR		
	C 521	NCB31HK-103X	C CAPACITOR		
	C 522	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 523	NCS31HJ-470X	C CAPACITOR		
	C 524	NCB31HK-153X	C CAPACITOR		
	C 525	NCB31HK-103X	C CAPACITOR		
	C 526	NCB31HK-272X	C CAPACITOR		
	C 527	NCB31HK-103X	C CAPACITOR		
	C 528	NCB31EK-333X	C CAPACITOR		
	C 529	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 530	NCB31EK-333X	C CAPACITOR		
	C 531	NCB31CK-473X	C CAPACITOR		
	C 533	NCS31HJ-471X	C CAPACITOR		
	C 534	NCS31HJ-471X	C CAPACITOR		
	C 535	NCB31CK-473X	C CAPACITOR		
	C 536	NCB31CK-473X	C CAPACITOR		
	C 537	NCB31CK-473X	C CAPACITOR		
	C 538	NCB31CK-473X	C CAPACITOR		
	C 539	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 540	NCB31HK-103X	C CAPACITOR		
	C 541	NCB31HK-103X	C CAPACITOR		
	C 542	NDC31HJ-100X	C CAPACITOR		
	C 543	NDC31HJ-100X	C CAPACITOR		
	C 544	NCB31HK-103X	C CAPACITOR		
	C 545	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 546	NCS31HJ-101X	C CAPACITOR		
	C 547	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 548	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 549	NCB31HK-103X	C CAPACITOR		
	C 550	QERF1HM-105Z	E CAPACITOR	1.0MF 20% 50V	
	C 551	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 552	NCB31HK-103X	C CAPACITOR		
	C 581	QERF1AM-227Z	E CAPACITOR	220MF 20% 10V	
	C 582	NCB31HK-103X	C CAPACITOR		
	C 583	QERF1CM-226Z	E CAPACITOR	22MF 20% 16V	

⚠	Item	Parts number	Parts name	Remarks	Area
	C 584	NCB31CK-473X	C CAPACITOR		
	C 585	QERF1AM-107Z	E CAPACITOR	100MF 20% 10V	
	C 601	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 602	NCB31HK-103X	C CAPACITOR		
	C 603	NCS31HJ-220X	C CAPACITOR		
	C 604	NCS31HJ-220X	C CAPACITOR		
	C 605	QERF0JM-476Z	E CAPACITOR	47MF 20% 6.3V	
	C 606	NCB31HK-103X	C CAPACITOR		
	C 609	QERF0JM-107Z	E CAPACITOR	100MF 20% 6.3V	
	C 610	NCB31CK-104X	C CAPACITOR		
	C 611	NCB31CK-104X	C CAPACITOR		
	C 612	NCB31CK-104X	C CAPACITOR		
	C 651	NCB31HK-103X	C CAPACITOR		
	C 901	QEZ0338-228	E CAPACITOR	2200MF	
	C 902	NCB31HK-103X	C CAPACITOR		
	C 906	NCS31HJ-101X	C CAPACITOR		
	C 907	NCS31HJ-101X	C CAPACITOR		
	C 912	QERF1CM-107Z	E CAPACITOR	100MF 20% 16V	
	C 913	QERF1AM-107Z	E CAPACITOR	100MF 20% 10V	
	C 914	NCB31HK-103X	C CAPACITOR		
	C 915	NCB31HK-103X	C CAPACITOR		
	C 941	QERF1AM-107Z	E CAPACITOR	100MF 20% 10V	
	C 942	NCB31HK-103X	C CAPACITOR		
	C 943	QERF1CM-476Z	E CAPACITOR	47MF 20% 16V	
	C 944	NCB31HK-103X	C CAPACITOR		
	C 945	NCB31HK-103X	C CAPACITOR		
	C 946	QERF1CM-106Z	E CAPACITOR	10MF 20% 16V	
	C 951	NCB31HK-103X	C CAPACITOR		
	C 982	NCB31HK-103X	C CAPACITOR		
	C 983	QERF1CM-476Z	E CAPACITOR	47MF 20% 16V	
	CN501	QGF1013F1-15X	CONNECTOR		
	CN502	QGF1012F1-26X	CONNECTOR		
	CN503	QGF1009F2-26	CONNECTOR		
	CN504	QGA2501F1-02	CONNECTOR		
	CN601	QGA2501F1-03	CONNECTOR		
	CN902	QNZ0095-001	CONNECTOR		
	CN903	QGF1013F1-10X	CONNECTOR		
	CN904	QGF1009F2-10	CONNECTOR		
	D 101	MA152WA-X	DIODE		
	D 583	DSK10C-T1	DIODE		
	D 584	DSK10C-T1	DIODE		
	D 585	DSK10C-T1	DIODE		
	D 911	DSK10C-T1	DIODE		
	D 912	UDZS6.2B-X	SI DIODE		
	D 913	MA152WA-X	DIODE		
	D 921	MA152WK-X	SI DIODE		
	D 941	UDZS10B-X	ZENER DIODE		
	D 951	UDZS5.1B-X	Z DIODE		
	D 981	UDZS9.1B-X	Z DIODE		
	F 901	ICP-N70	IC PROTECTER		
	IC101	BA15218F-XE	IC		
	IC501	TA2147F-X	IC		
	IC521	TC9490FA	IC		
	IC581	FAN8037	IC		
	IC601	UPD780058GC-291	IC		
	IC602	IC-PST9333U-X	IC		
	IC604	BR24C01AF-W-X	IC		
	IC651	HD74HC126FP-X	IC		
	L 521	QQL244K-4R7Z	INDUCTOR		
	L 522	QQL244K-4R7Z	INDUCTOR		
	L 524	QQL244K-4R7Z	INDUCTOR		
	L 601	QQL244K-4R7Z	INDUCTOR		
	Q 101	2SD1048/6-7/-X	TRANSISTOR		

■ **Electrical parts list (Main board)** **Block No. 01**

⚠	Item	Parts number	Parts name	Remarks	Area
	O 201	2SD1048/6-7/-X	TRANSISTOR		
	O 501	2SB1241/QR/-T	TRANSISTOR		
	Q 581	2SB1322/RS/-T	TRANSISTOR		
	O 582	DTA114EKA-X	D TRANSISTOR		
	O 583	DTC114EKA-X	TRANSISTOR		
	O 602	2SC2412K/R/-X	TRANSISTOR		
	O 901	2SA1037AK/R/-X	TRANSISTOR		
	O 902	DTC114EKA-X	TRANSISTOR		
	Q 911	2SD1994A/RS/-T	TRANSISTOR		
	O 921	2SC2412K/R/-X	TRANSISTOR		
	O 922	2SA1037AK/R/-X	TRANSISTOR		
	Q 941	2SB941A/QP/	TRANSISTOR		
	O 942	2SD1994A/RS/-T	TRANSISTOR		
	Q 943	DTA114EKA-X	D TRANSISTOR		
	O 944	DTC114EKA-X	TRANSISTOR		
	O 971	2SA1037AK/R/-X	TRANSISTOR		
	O 972	2SC2412K/R/-X	TRANSISTOR		
	O 981	2SD1994A/RS/-T	TRANSISTOR		
	R 101	NRSA63J-203X	MG RESISTOR		
	R 102	NRSA63J-123X	MG RESISTOR		
	R 103	NRSA63J-333X	MG RESISTOR		
	R 104	NRSA63J-223X	MG RESISTOR		
	R 105	NRSA63J-223X	MG RESISTOR		
	R 106	NRSA63J-103X	MG RESISTOR		
	R 107	NRSA63J-471X	MG RESISTOR		
	R 108	NRSA63J-682X	MG RESISTOR		
	R 112	NRSA63J-470X	MG RESISTOR		
	R 201	NRSA63J-203X	MG RESISTOR		
	R 202	NRSA63J-123X	MG RESISTOR		
	R 203	NRSA63J-333X	MG RESISTOR		
	R 204	NRSA63J-223X	MG RESISTOR		
	R 205	NRSA63J-223X	MG RESISTOR		
	R 206	NRSA63J-103X	MG RESISTOR		
	R 207	NRSA63J-471X	MG RESISTOR		
	R 208	NRSA63J-682X	MG RESISTOR		
	R 503	NRSA63J-683X	MG RESISTOR		
	R 504	NRSA63J-683X	MG RESISTOR		
	R 505	NRSA63J-334X	MG RESISTOR		
	R 506	NRSA63J-334X	MG RESISTOR		
	R 507	NRSA02J-220X	MG RESISTOR		
	R 508	NRSA02J-220X	MG RESISTOR		
	R 509	NRSA63J-823X	MG RESISTOR		
	R 510	NRSA63J-473X	MG RESISTOR		
	R 511	NRSA63J-103X	MG RESISTOR		
	R 512	NRSA63J-202X	MG RESISTOR		
	R 513	NRSA63J-102X	MG RESISTOR		
	R 514	NRSA63J-273X	MG RESISTOR		
	R 515	NRSA63J-101X	MG RESISTOR		
	R 516	NRSA63J-821X	MG RESISTOR		
	R 517	NRSA63J-223X	MG RESISTOR		
	R 518	NRSA63J-333X	MG RESISTOR		
	R 519	NRSA63J-151X	MG RESISTOR		
	R 521	NRSA63J-562X	MG RESISTOR		
	R 522	NRSA63J-473X	MG RESISTOR		
	R 523	NRSA63J-474X	MG RESISTOR		
	R 524	NRSA63J-333X	MG RESISTOR		
	R 525	NRSA63J-103X	MG RESISTOR		
	R 527	NRSA63J-101X	MG RESISTOR		
	R 528	NRSA63J-101X	MG RESISTOR		
	R 531	NRSA63J-101X	MG RESISTOR		
	R 532	NRSA63J-101X	MG RESISTOR		
	R 534	NRSA63J-472X	MG RESISTOR		
	R 535	NRSA63J-472X	MG RESISTOR		

⚠	Item	Parts number	Parts name	Remarks	Area
	R 536	NRSA63J-472X	MG RESISTOR		
	R 537	NRSA63J-472X	MG RESISTOR		
	R 538	NRSA63J-103X	MG RESISTOR		
	R 539	NRSA63J-105X	MG RESISTOR		
	R 543	NRSA63J-121X	MG RESISTOR		
	R 544	NRSA63J-225X	MG RESISTOR		
	R 581	NRSA63J-122X	MG RESISTOR		
	R 582	NRSA63J-183X	MG RESISTOR		
	R 583	NRSA63J-332X	MG RESISTOR		
	R 584	NRSA63J-821X	MG RESISTOR		
	R 585	NRSA63J-682X	MG RESISTOR		
	R 586	NRSA63J-682X	MG RESISTOR		
	R 587	NRSA63J-682X	MG RESISTOR		
	R 588	NRSA63J-822X	MG RESISTOR		
	R 591	NRSA63J-272X	MG RESISTOR		
	R 593	NRSA63J-103X	MG RESISTOR		
	R 595	NRSA63J-333X	MG RESISTOR		
	R 596	NRSA63J-103X	MG RESISTOR		
	R 597	NRSA63J-472X	MG RESISTOR		
	R 598	QRT017J-R47	MF RESISTOR	5% 1W	
	R 601	NRSA63J-222X	MG RESISTOR		
	R 602	NRSA63J-103X	MG RESISTOR		
	R 603	NRSA63J-472X	MG RESISTOR		
	R 604	NRSA63J-472X	MG RESISTOR		
	R 605	NRSA63J-472X	MG RESISTOR		
	R 606	NRSA63J-103X	MG RESISTOR		
	R 607	NRSA63J-103X	MG RESISTOR		
	R 609	NRSA63J-473X	MG RESISTOR		
	R 610	NRSA63J-473X	MG RESISTOR		
	R 611	NRSA63J-473X	MG RESISTOR		
	R 612	NRSA63J-473X	MG RESISTOR		
	R 614	NRSA63J-473X	MG RESISTOR		
	R 617	NRSA63J-103X	MG RESISTOR		
	R 618	NRSA63J-102X	MG RESISTOR		
	R 619	NRSA63J-103X	MG RESISTOR		
	R 620	NRSA63J-104X	MG RESISTOR		
	R 621	NRSA63J-473X	MG RESISTOR		
	R 622	NRSA63J-103X	MG RESISTOR		
	R 623	NRSA63J-473X	MG RESISTOR		
	R 625	NRSA63J-472X	MG RESISTOR		
	R 626	NRSA63J-473X	MG RESISTOR		
	R 651	NRSA63J-223X	MG RESISTOR		
	R 652	NRSA63J-101X	MG RESISTOR		
	R 653	NRSA63J-223X	MG RESISTOR		
	R 654	NRSA63J-334X	MG RESISTOR		
	R 655	NRSA63J-101X	MG RESISTOR		
	R 656	NRSA63J-223X	MG RESISTOR		
	R 657	NRSA63J-334X	MG RESISTOR		
	R 658	NRSA63J-331X	MG RESISTOR		
	R 659	NRSA63J-104X	MG RESISTOR		
	R 660	NRSA63J-103X	MG RESISTOR		
	R 661	NRSA63J-104X	MG RESISTOR		
	R 901	NRSA63J-103X	MG RESISTOR		
	R 902	NRSA63J-392X	MG RESISTOR		
	R 903	NRSA02J-222X	MG RESISTOR		
	R 911	NRSA63J-472X	MG RESISTOR		
	R 912	NRSA02J-2R2X	MG RESISTOR		
	R 921	NRSA63J-273X	MG RESISTOR		
	R 923	NRSA63J-184X	MG RESISTOR		
	R 924	NRSA63J-682X	MG RESISTOR		
	R 925	NRSA63J-223X	MG RESISTOR		
	R 926	NRSA63J-223X	MG RESISTOR		
	R 941	NRSA63J-100X	MG RESISTOR		

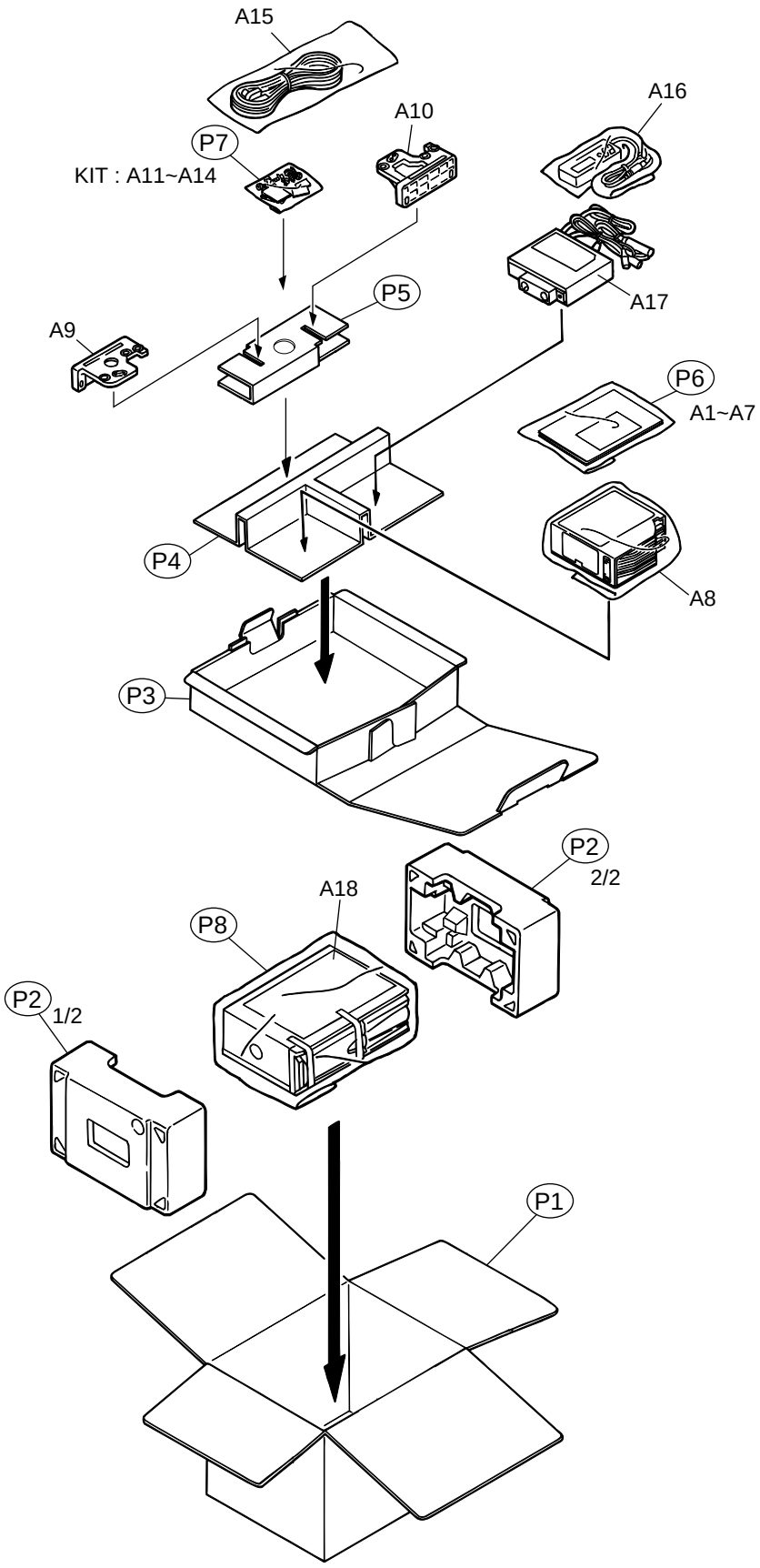
■ **Electrical parts list (Main board)** **Block No. 01**

⚠	Item	Parts number	Parts name	Remarks	Area
	R 942	NRSA63J-471X	MG RESISTOR		
	R 943	NRSA63J-332X	MG RESISTOR		
	R 951	NRSA63J-122X	MG RESISTOR		
	R 954	NRSA63J-272X	MG RESISTOR		
	R 971	NRSA63J-223X	MG RESISTOR		
	R 972	NRSA63J-222X	MG RESISTOR		
	R 973	NRSA63J-104X	MG RESISTOR		
	R 981	NRSA63J-221X	MG RESISTOR		
	R 982	NRSA63J-221X	MG RESISTOR		
	S 601	VSH1173-001	SWITCH		
	S 602	VSH1173-001	SWITCH		
	S 603	VSH1173-001	SWITCH		
	S 604	VSH1173-001	SWITCH		
	S 606	QSW0643-001Z	TACT SWITCH		
	X 521	QAX0413-001Z	CRYSTAL		
	X 601	QAX0414-001Z	CRYSTAL		

Packing materials and accessories parts list

Block No. M 3 M M

Block No. M 5 M M



■ Parts list (Packing)

Block No. M3MM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	P 1	LV33326-001A	CARTON	1		
	P 2	LV10504-001A	CUSHION	1		
	P 3	LV30453-003A	ACCESSARY BOX	1		
	P 4	LV30575-002A	SEPALATOR	1		
	P 5	LV30576-002A	SPACER	1	FOR MOUNT HOLDE	
	P 6	QPA01703505P	POLY BAG	1		
	P 7	QPA00801205	POLY BAG	1	SCREW SA	
	P 8	QPC03005120P	POLY BAG	1	FOR UNIT	

■ Parts list (Accessories)

Block No. M5MM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	A 1	LVT0849-001A	INST BOOK	1	ENG,SPA,FRE	
	A 2	LVT0844-001A	INST BOOK(KS-RF50)	1	ENG,SPA,FRE	
	A 3	BT-51018-3	WARRANTY CARD	1		
	A 4	BT-51028-1	J=REGIST CARD	1		
	A 5	BT-20071B	JVC CENTER LIST	1		
	A 6	BT-52004-2	WARRANTY CARD	1		
	A 7	LVT0327-001B	TROUBLE SHOOTIN	1		
	A 8	LV30682-205A-CL	MAGAZINE ASSY	1		
	A 9	LV20738-002A	MOUNT HOLDER(L)	1		
	A 10	LV20737-002A	MOUNT HOLDER(R)	1		
	A 11	QYSDSP4008Z	SCREW	4		
	A 12	VKZ4029-003	SCREW	4	M5 X 20	
	A 13	VYTT546-004	SHEET(B)	2		
	A 14	VYTT547-004	SHEET(A)	2		
	A 15	QAM0149-001	8P BUS-BUS CORD	1		
	A 16	LV42722-001A	DISPLAY UNIT	1		
	A 17	LV42720-001A	RF UNIT	1		
	A 18	LV40507-001A	INST SHEET	1		
	KIT	CHX99RF-SCREW1	SCREW PARTS KIT	1	A11~A14	